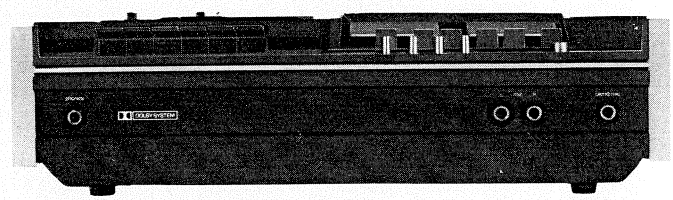
Nakamichi

Service Manual

Nakamichi 500

2 Head Cassette System



500

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1. GENERAL

This is the second issue of the Nakamichi 500 Service Manual and applies to the Models bearing serial Nos. 365741 and greater (for SX tape). Refer to chapter 12 "History on 500" for the Models bearing serial Nos. 365740 and smaller (for Cr02 tape).

2. PRINCIPLE OF OPERATION

2.1. Auto Shut-off Circuit

Refer to Fig. 2.

By pressing one of the push buttons, Play, F.F., and REW, the start switch is turned ON, +13V DC power supply will be delivered to the auto shut-off P.C.B., motor governor, and motor.

During the play, F.F., or REW., the counter pulley linked to the take-up reel turns, and by means of two magnets mounted this pulley, the reed switch repeats ON/OFF operation.

Now, although charged through the resistor R604 (68 KΩ), the shut-off detecting capacitor C602 (47 μF) is allowed to discharge through the transistor Q601 every time the reed switch repeats the ON/OFF operation. Therefore, the potential of C602 can never exceed the voltage capable of turning Q602 ON.

The normal conditions of elements before the tape reaches its end are given below:

Q601 – ON/Cutoff	Relay – ON
Q602 – Cutoff	C407 – Charging
Q603 – ON	Solenoid – OFF
Q604 – ON	Start Switch – ON

Tape End

When the tape reaches an end, the reed switch stops its ON/OFF operation. C602 continuously charged and when the potential exceeded that of Q602 emitter (about 4V), Q602 is turned ON. As a result, Q603 and Q604 go to OFF, thus the shut-off operation is performed.

The conditions of the elements for shut-off are given below:

Q601 – Cutoff	Relay – OFF
Q602 – ON	C407 – Starts to discharge and drives the solenoid.
Q603 – Cutoff	Solenoid – ON and releases the start switch and Play, F.F., or REW button.
Q604 – Cutoff	Start SW. – Released and stops the motor.

Memory Rewind

During rewind with the memory switch turned ON, the auto shut-off functions when the counter switch is ON (i.e. the counter reaches "000").

The terminal A conducted to the motor governor circuit carries a potential of about +13V only for the rewind, and at the counter "000", this voltage is impressed on C604 (point B). For this reason, the potential at B changes from about 9V to 13V, and thus a positive differentiated pulse is applied to the Q604 base through the C604, resulting in Q604 cut off.

The cutoff of the Q604 will operate the auto shut-off, and releases the start switch.

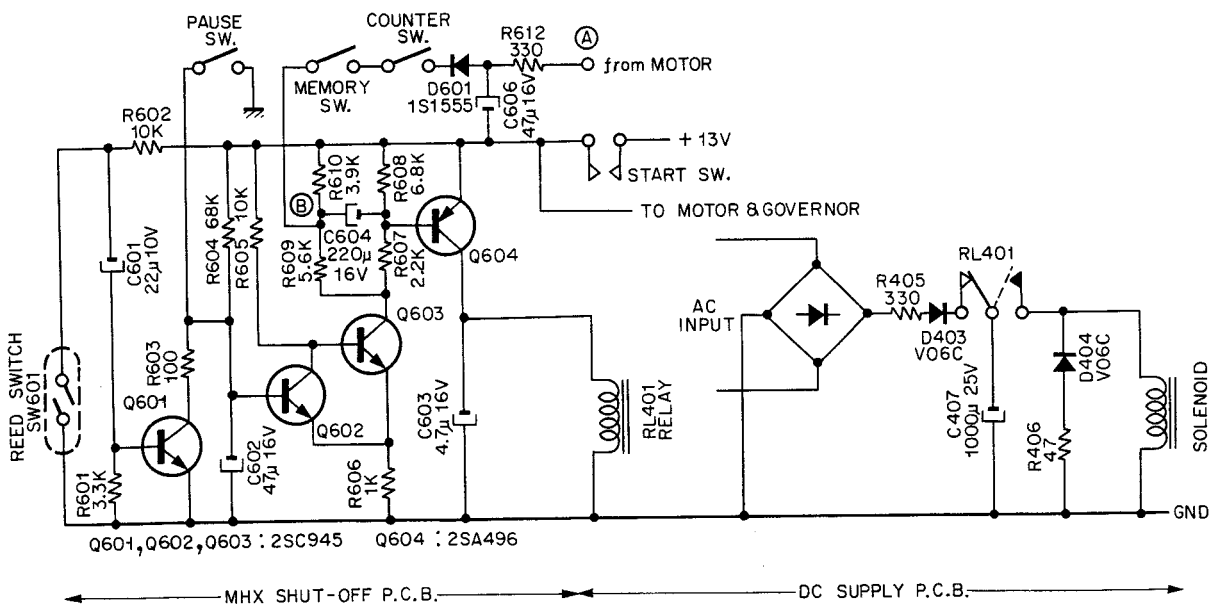

Fig. 2

3. CABINET DISASSEMBLY INSTRUCTIONS

Refer to Fig. 3.

(1) Remove control knobs 05 from the Cabinet Top.
(2) Remove 4 screws from the Cabinet Bottom 04.
(3) Remove the Cabinet Bottom 04.
(4) Remove 2 screws from Model Name Plate.
(5) Pull out the woodframe 02, 03.
(6) Remove 6 screws from the stud of Plastic Cabinet 06.
(7) Pull out the Plastic Cabinet 06.
(8) All Mechanism and Electronics are accessible from outside.
(9) Disassembly of individual Mechanism and Electronics circuit board is shown on later pages.

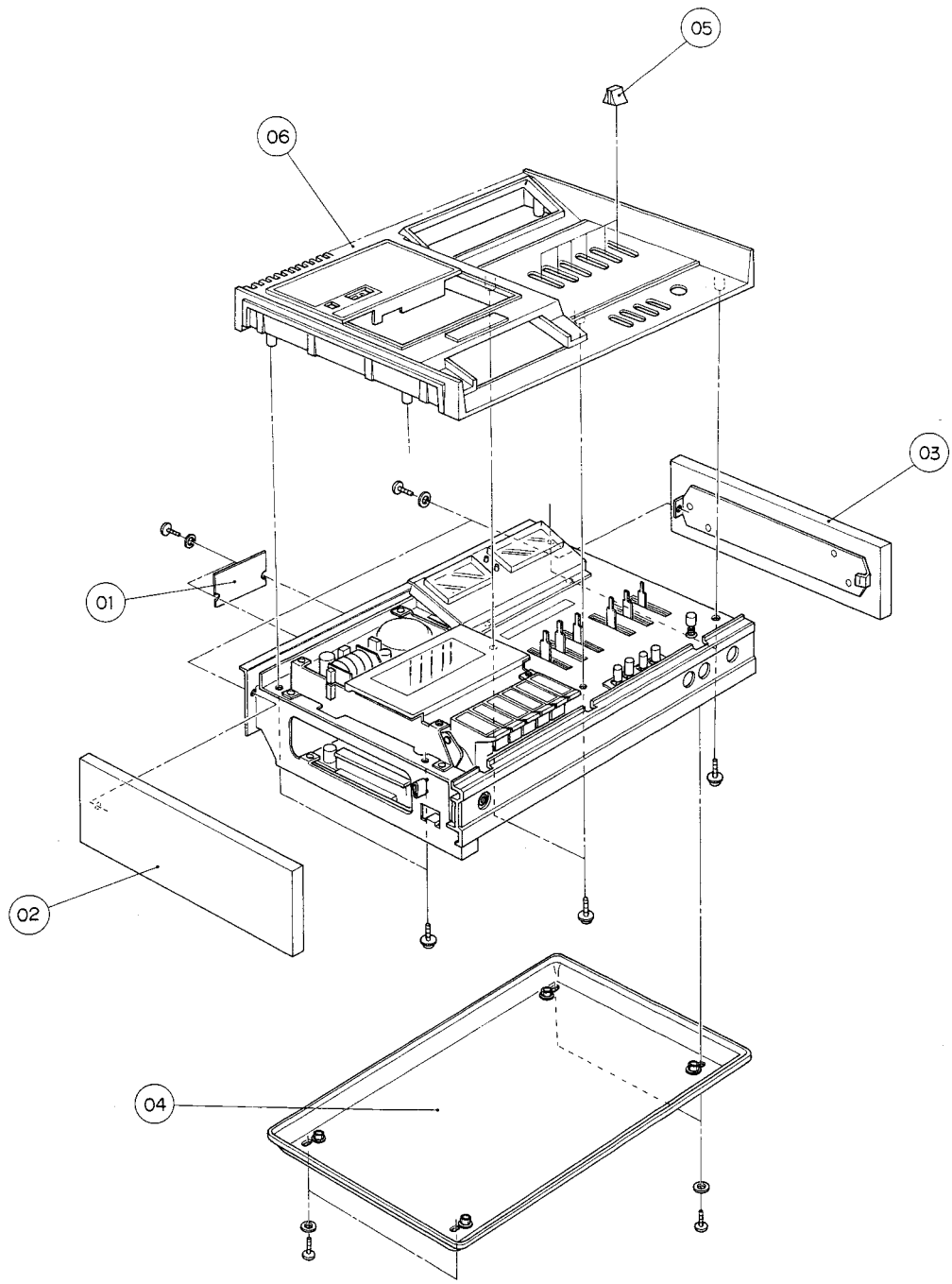

Fig. 3

4. MECHANICAL ADJUSTMENTS

4.1. Take-up Torque and Rewind Torque Adjustment

Refer to Fig. 4.1.

(1) Remove top and bottom cabinets of the cassette recorder.
(2) Remove cassette case.
(3) To adjust torque, move Torque Plate as shown in the figure.
(4) The Take-up Torque should be 45±10g-cm.
(5) The Supply Torque should be 35 to 60g-cm.

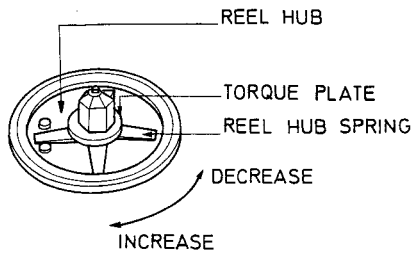

Fig. 4.1

4.2. Record/Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.2.

(1) Connect a VTVM to PLAYBACK output jack.
(2) Load the 1KHz Track Alignment Tape (DA09007A) for adjusting the head height.
(3) Insert the Tape Guide Adjuster (0D09001A) into each hole of the tape guide beside the head. Adjust the jig for minimizing each output signal of the right and left channels.
(4) Load the 15KHz Azimuth Tape (DA09004A) for azimuth alignment.
(5) Adjust the azimuth alignment screw for maximizing each output signal of the right and left channels.

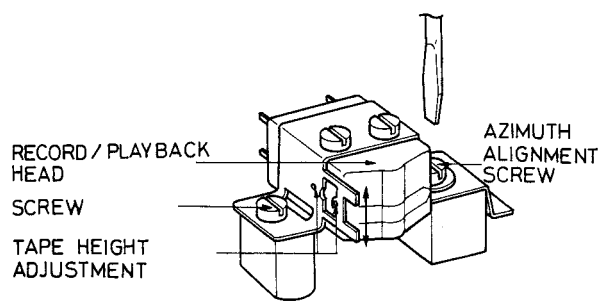

Fig. 4.2

4.3. Tape Speed Adjustment

Refer to Fig. 4.3.

(1) Connect a frequency counter either to the left or right PLAYBACK output jack.
(2) Load the 3KHz Speed Wow Flutter Tape (DA09006A) and play it back.
(3) Adjust the Tape Speed Adjust potentiometer (accessible from the rear apron of the cassette recorder) for an average reading of 3KHz on the frequency counter.

Caution: The above procedures require the use of a frequency counter to accurately set the tape speed. Any other methods used for speed determination may result in an appreciable significant speed error.

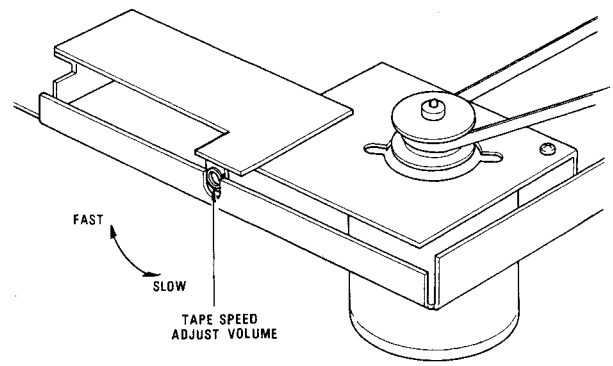

Fig. 4.3

4.4. Automatic Push Button Release Adjustment

Refer to Fig. 4.4

Adjust the location of the solenoid with the screw so that the Push Button key can automatically be released when the tape comes to an end in RECORD mode.

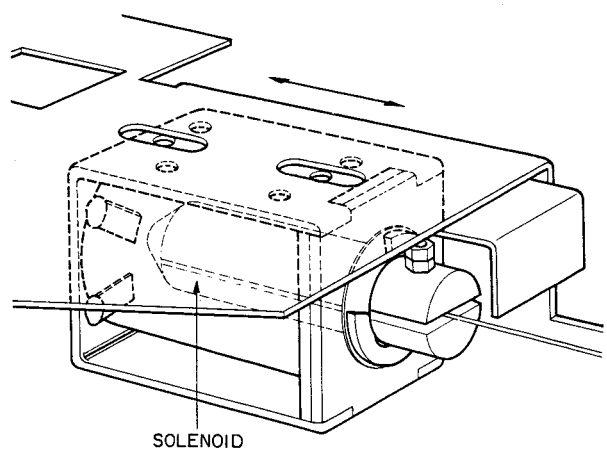

Fig. 4.4

4.5. Belt Travelling Adjustment

Refer to Fig. 4.5.

(1) Adjust the motor pulley position, then check to insure whether the drive belt is travelling along the correct position and also staying at the correct position, i.e. the center part of the motor pulley and idler pulley without contacting the belt guide at the following modes.
Playback, F.F., REW, F.F. to Stop, REW to Stop

(2) In case motor pulley is tilting, insert spacers into A, B (when belt slips upward on the motor pulley) or C (when belt slips downward).

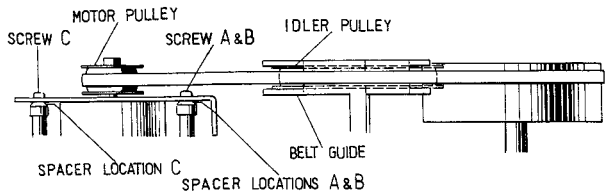

Fig. 4.5

4.6. Flywheel Adjustment

Refer to Fig. 4.6. Adjust the flywheel clearances should be 0.05 to 0.1mm. After adjustment, lock the lock nut.

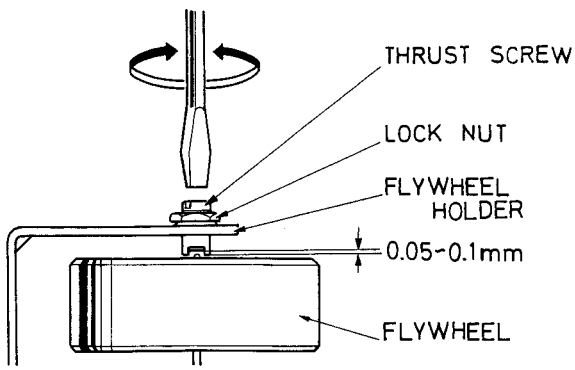

Fig. 4.6

4.7. Lubrication

Refer to Fig. 4.7.

After 500 hours of use apply a few drops of light machine oil (LAUNA No. 40) between capstan and capstan bearing and to the pressure roller.

Note: If oil is applied to the capstan shaft and other drive mechanisms, clean it off with an alcohol-dipped cloth. When flywheel or flywheel holder is replaced apply a few drops of grease to the flywheel holder.

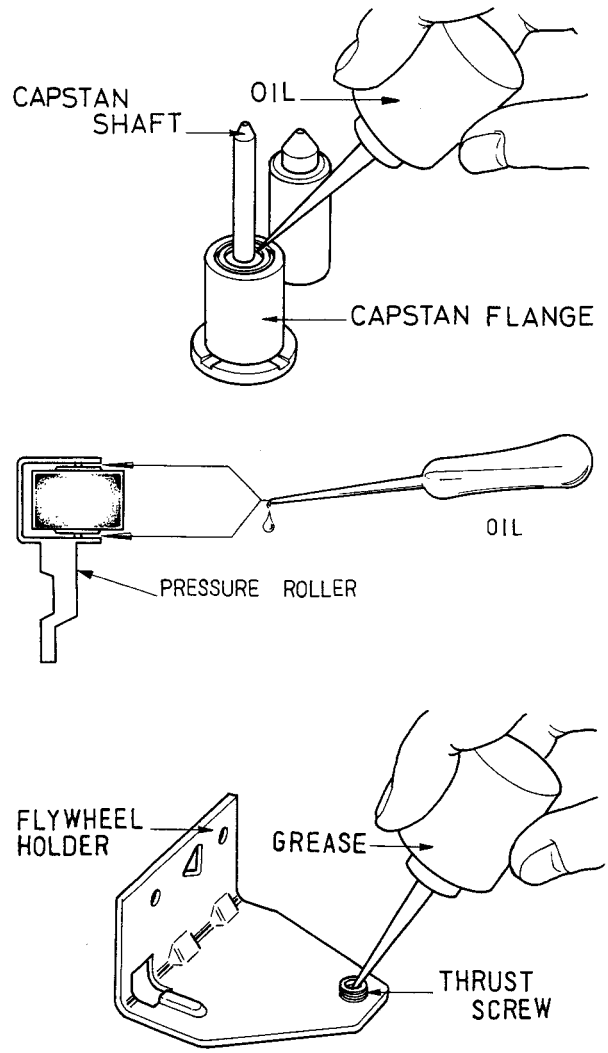

Fig. 4.7

5. ELECTRICAL ADJUSTMENTS

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
1	Tape Speed	3KHz Speed & Wow/Flutter Tape (DA09006A)	Wow/Flutter Meter or Frequency Counter to OUTPUT Jack	Playback	Governor Board VR501	Adjust VR501 to obtain 3 KHz
2	Head Azimuth Alignment	15KHz Azimuth Tape (DA09004A)	VTVM to OUTPUT Jack	Playback	Azimuth Alignment Screw	Adjust the Screw to obtain maximum reading on the VTVM
3	Playback Output Level	400Hz Level Tape (DA09005A)	VTVM to Pin 3 & 12 of Connector CN 3 and Chassis Ground	Playback	Main Board VR101 VR201	Adjust the VR101,201 to obtain 580mV on the VTVM
4	Meter Level	400Hz, 0.5V to INPUT Jack	Same as above	Record Pause	Main Board VR102 VR202	1. Adjust VR1,2, Record Level Controls to obtain 580 mV on the VTVM 2. Adjust VR 102, 202 to obtain 0dB on the Level Meters
5	MPX Filter	19 KHz to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Main Board L102 L202 MPXSW·ON	Adjust the Coils to obtain minimum reading on the VTVM
6	Record Amplifier Equalizer	17 KHz to INPUT Jack	VTVM across R102, 202	Record Pause	Main Board L103 L203	Adjust the Coils to obtain peak readings at 17 KHz Note: Stop Bias Oscillation
7	Bias Frequency	105 KHz Generator Signal to Oscilloscope Horizontal Terminal	Bias Oscillator Signal at Erase Head to the Scope Vertical Terminal	Record Pause	Main Board T301	Adjust the Coil until a circle pattern appears on the Oscilloscope
			Coupling Erase Head to Frequency Counter	Record Pause	Main Board T301	Adjust the Coil to obtain 105 KHz on the Frequency Counter
8	Bias Trap		VTVM across Q109, 209 Collector & Ground	Record Pause	Main Board L104 L204	Adjust the Coils to obtain less than 1V on the VTVM
9	Recording Bias Current	400Hz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record & Playback	Volume Sub Board TR702 802 703 803 704 804	1. Adjust VR1, 2, Record Input Level Controls to obtain 0dB on the Level Meters 2. Record the signal on blank tape and palyback 3. Repeating Step 2 adjust VR 702, 802 to obtain maximum output on the VTVM (Normal) 4. Repeating Step 2 adjust VR703, 803 to obtain maximum output on the VTVM (EX) 5. Repeating Step 2 adjust VR704, 804 to obtain maximum output on the VTVM (SX)

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
10	Record/ Playback Output Level	400Hz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record & Playback	REC. CAL. Board VR705 805 706 806 707 807	1. Adjust VR1, 2 Record Input Level Controls to obtain 0dB on the Level Meters 2. Record the signal on blank tape and playback it 3. Repeating Step 2, adjust VR705, 805 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (Normal) 4. Repeating Step 2, adjust VR706, 806 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (EX) 5. Repeating Step 2, adjust VR707, 807 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (SX)
11	Limiter Level	1KHz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Volume sub Board VR701 VR801	1. Adjust VR 1. 2 Record Level Controls to obtain 0dB on the Level Meter. 2. Set Limiter SW to ON position. 3. Adjust VR701, 801, so that the Output Level may be decreased by 1dB.

DOLBY CIRCUIT ALIGNMENT PROCEDURE

(1) Turn LAW Control VR101, 201 fully counterclockwise.
(2) Turn GAIN Controls VR102 and VR202 fully counterclockwise.
(3) Set Dolby Switch (IN-OUT) to OUT position and ground FET Gate Terminal with a jumper wire.
(4) Connect an AC VTVM to METERING Terminal 3 for the Right channel or 12 for the Left channel.
(5) Apply 5KHz signals having a proper level to INPUT Terminal 2 for the Right channel or 13 for the Left channel, so that the VTVM reads 17.5mV in each channel.
(6) Remove the VTVM from Terminal 3 or 12 and reconnect it to OUTPUT Terminal 6 or 9. Note the output voltage on VTVM.
(7) Set DOLBY Switch to IN position and adjust GAIN Controls VR102 and 202, so that the VTVM indicates 10dB over the noted voltage in Step (6).
(8) Set DOLBY Switch to IN position. Note the voltage at OUTPUT Terminal 6 for the Right channel or 9 for the Left channel.
(9) Remove the jumper wire from the FET Gate Terminal. Adjust the LAW Controls VR101 and VR201, so that the voltage at OUTPUT Terminals 6 and 9 read 2dB below the noted voltage in Step (8).

6. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

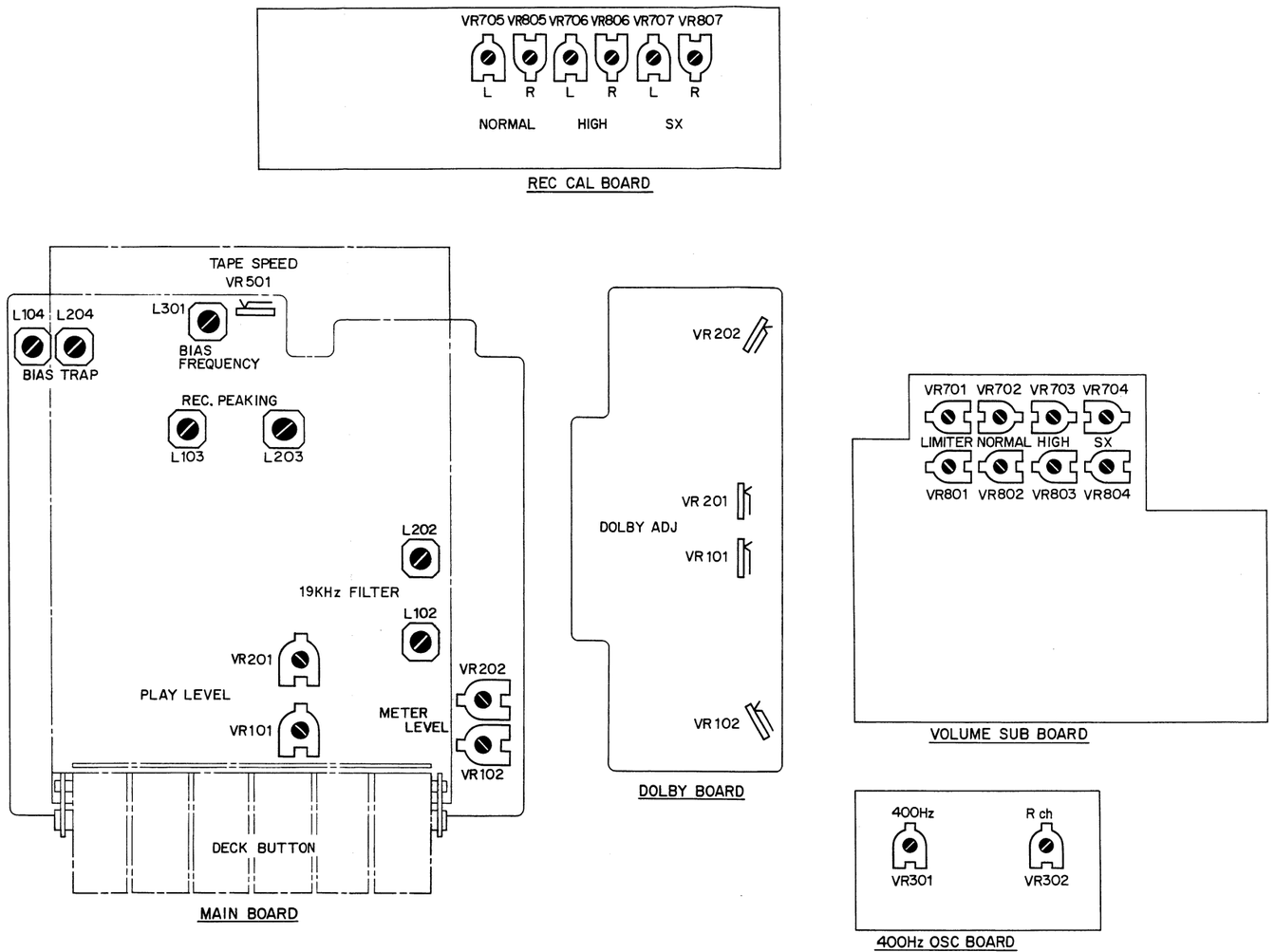

Fig. 6

7. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
2. Diode 1S1555, transistors 2SA733 and 2SC900 are compatible with diode FDH-999, transistors 2SA495 and 2SC732, respectively.

7.1. Main Board Ass'y

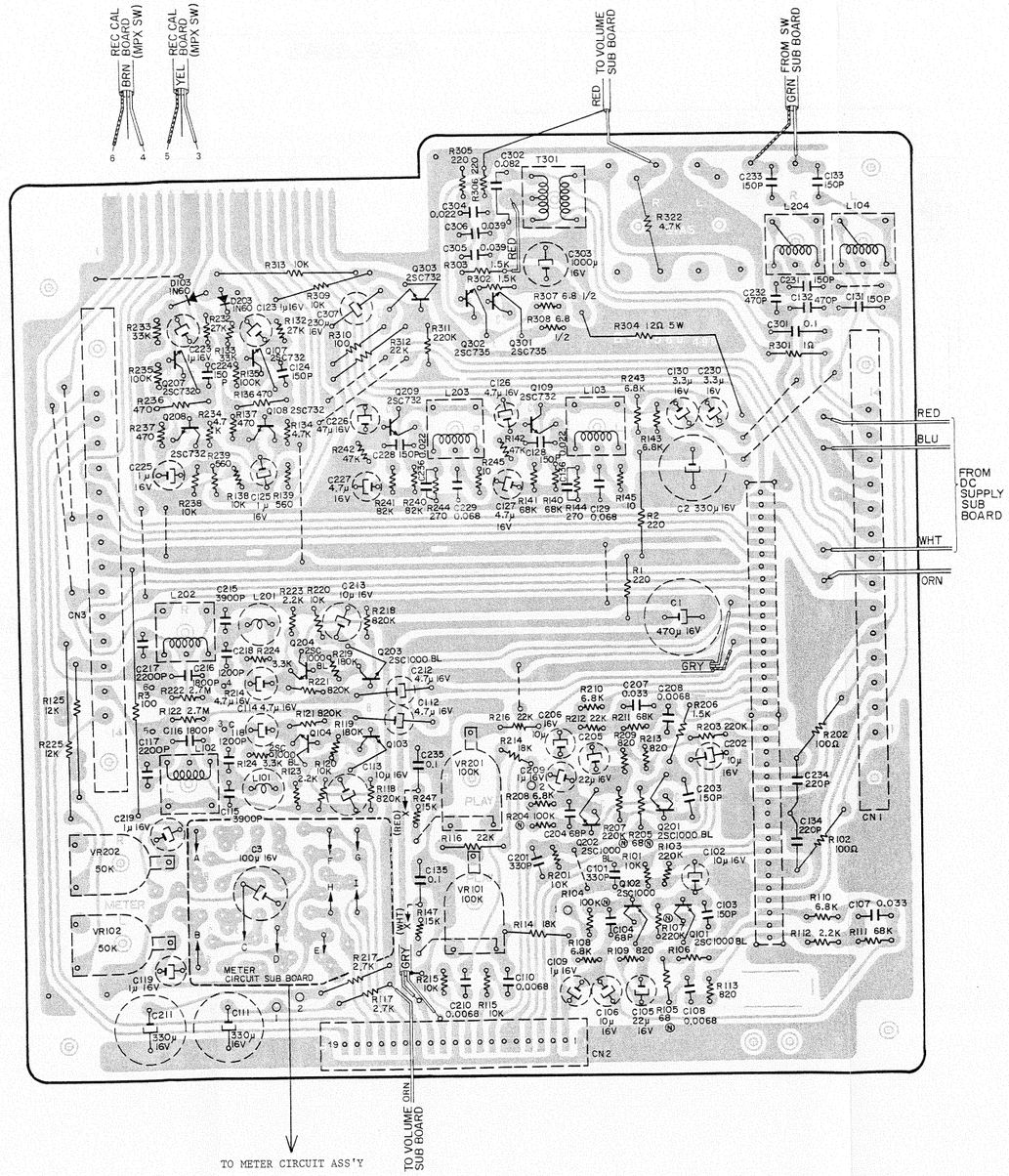

Fig. 7.1

7.2. Meter Circuit Ass'y

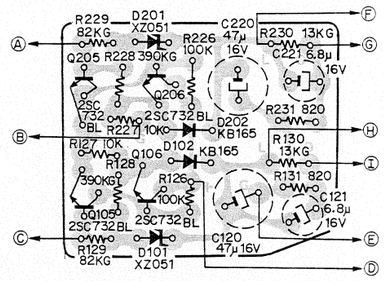

Fig. 7.2

Schematic Ref. No.	Part No.	Description
	BA03682A	Main Board Ass'y (SX) — Pre. AMP —
Q101, 201	0B06003A	Transistor 2SC1000 (BL)
102, 202		
R101, 201	0B01833A	Carbon Resistor 10K ELR¼, J
115, 215		
R102, 202	0B01679A	Carbon Resistor 100 ELR¼, J
R103, 203	0B05517A	Carbon Resistor 220K N ELR¼, J
107, 207		
R104, 204	0B01931A	Carbon Resistor 100K N ELR¼, J
R105, 205	0B05683A	Carbon Resistor 68 N ELR¼, J
R106, 206	0B05505A	Carbon Resistor 1.5K ELR¼, J
R108, 208	0B01877A	Carbon Resistor 6.8K ELR¼, J
110,210		
R109,209	0B05511A	Carbon Resistor 820 ELR¼, J
113, 213		
R111, 211	0B01902A	Carbon Resistor 68K ELR¼, J
R112, 212	0B05566A	Carbon Resistor 2.2K ELR¼, J
R114, 214	0B05561A	Carbon Resistor 18K ELR¼, J
R116, 216	0B05661A	Carbon Resistor 22K ELR¼, J
R117, 217	0B01782A	Carbon Resistor 2.7K ELR¼, J
R147, 247	0B05591A	Carbon Resistor 15K ELR¼, J
R148, 248	0B1920A	Carbon Resistor 100K ELR¼, J
C101, 201	0B01180A	Ceramic Capacitor 330P, 50V, M
C102, 202	0B01412A	Electrolytic Capacitor 10μ 16V
106, 206		
C103, 203	0B05599A	Ceramic Capacitor 150P, 50V, M
C104, 204	0B05525A	Ceramic Capacitor 68P, 50V, M
C105, 205	0B01862A	Electrolytic Capacitor 22μ, 16V
C107, 207	0B05531A	Mylar Capacitor 0.033μ, 50V, K
C108, 208	0B05701A	Mylar Capacitor 0.0068μ, 50V, K
110, 210		
C109, 209	0B01405A	Electrolytic Capacitor 1μ, 16V
C111, 211	0B01502A	Electrolytic Capacitor 330μ, 16V
C134, 234	0B01289A	Ceramic Capacitor 220P, 50V, M
C135, 235	0B01603A	Mylar Capacitor 0.1μ, 50V, K
VR101,201	0B01812A	Semi-fixed Volume 100K
		— Buffer AMP —
Q103, 203	0B06003A	Transistor 2SC1000 (BL)
104, 204		
L101, 201	0B03919A	Inductor 36mH
L102, 202	0B03857A	19KHz Coil 23mH

Schematic Ref. No.	Part No.	Description
R1	0B05608A	Carbon Resistor 220 ELR¼, J
R118, 218	0B05674A	Carbon Resistor 820K ELR¼, J
121, 221		
R119, 219	0B05669A	Carbon Resistor 180K ELR¼, J
R120, 220	0B01833A	Carbon Resistor 10K ELR¼, J
R122, 222	0B05753A	Carbon Resistor 2.7M ELR¼, J
R123, 223	0B05566A	Carbon Resistor 2.2K ELR¼, J
R124, 224	0B01793A	Carbon Resistor 3.3K ELR¼, J
C1	0B01392A	Electrolytic Capacitor 470μ 16V
C112, 212	0B01389A	Electrolytic Capacitor 4.7μ 16V
114, 214		
C113, 213	0B01412A	Electrolytic Capacitor 10μ 16V
C115, 215	0B01804A	Mylar Capacitor 3900P, 50V, J
C116, 216	0B05751A	Mylar Capacitor 1800P, 50V, K
C117, 217	0B01802A	Mylar Capacitor 2200P, 16V, J
C118, 218	0B05750A	Mylar Capacitor 1200P, 16V, K
		– Meter AMP –
R3	0B01679A	Carbon Resistor 100 R¼, J
R125, 225	0B05771A	Carbon Resistor 12K R¼, J
C3	0B01400A	Electrolytic Capacitor 100μ 16V
C119, 219	0B01405A	Electrolytic Capacitor 1μ 16V
VR102,202	0B01807A	Semi-fixed Volume 50K
		– Line AMP –
Q107, 207	0B01910A	Transistor 2SC900 (E)
108, 208		
R132, 232	0B05538A	Carbon Resistor 27K ELR¼, J
R133, 233	0B01879A	Carbon Resistor 33K ELR¼, J
R134, 234	0B01795A	Carbon Resistor 4.7K ELR¼, J
R135, 235	0B01920A	Carbon Resistor 100K ELR¼, J
R136, 236	0B01792A	Carbon Resistor 470 ELR¼, J
137, 237		
R138, 238	0B01833A	Carbon Resistor 10K ELR¼, J
R139, 239	0B05678A	Carbon Resistor 560 ELR¼, J
C123, 223	0B01405A	Electrolytic Capacitor 1μ 16V
125, 225		
C124, 224	0B05599A	Ceramic Capacitor 150P, 50V, M
		– REC. AMP –
Q109, 209	0B01910A	Transistor 2SC900 (E)
L103, 203	0B03858A	Peaking Coil 1.14mH
L104, 204	0B03859A	Bias Trap Coil 10.5mH
R2	0B01933A	Carbon Resistor 220 R¼, J
R140, 240	0B01564A	Carbon Resistor 82K ELR¼, J
141, 241		
R142, 242	0B05562A	Carbon Resistor 47K ELR¼, J
R143, 243	0B01877A	Carbon Resistor 6.8K ELR¼, J
R144, 244	0B05651A	Carbon Resistor 270 ELR¼, J
R145, 245	0B05663A	Carbon Resistor 10 ELR¼, J
C2	0B01502A	Electrolytic Capacitor 330μ 16V
C126, 226	0B01389A	Electrolytic Capacitor 4.7μ 16V
127, 227		
C128, 228	0B05599A	Ceramic Capacitor 150P, 50V, M
131, 231		
C129, 229	0B05586A	Mylar Capacitor 0.068μ 50V, K
C130, 230	0B00608A	Electrolytic Capacitor 3.3μ 25V
C132, 232	0B01716A	Ceramic Capacitor 470P, 50V, M
C136, 236	0B04062A	Mylar Capacitor 0.022μ 50V, K

Schematic Ref. No.	Part No.	Description
		– BIAS OSC –
Q301, 302	0B01338A	Transistor 2SC735 (Y)
T301	0B03932A	BIAS, OSC Coil
R301	0B05746A	Carbon Resistor 1 ELR¼, J
R302, 303	0B05505A	Carbon Resistor 1.5K ELR¼, J
R304	0B05761A	Cement Resistor 12 5W
R305, 306	0B05608A	Carbon Resistor 220 ELR¼, J
R307, 308	0B05696A	Carbon Resistor 6.8 R50, J
R322	0B01795A	Carbon Resistor 4.7K ELR¼, J
C301	0B01603A	Mylar Capacitor 0.1μ 50V, K
C302	0B01904A	Mylar Capacitor 0.082μ 50V, K
C303	0B01400A	Electrolytic Capacitor 100μ 16V
C304	0B04062A	Mylar Capacitor 0.022μ 50V, K
C305, 306	0B05684A	Mylar Capacitor 0.039μ 50V, K
C133, 233	0B05599A	Ceramic Capacitor 150P, 50V, M
		– Muting Circuit –
Q303	0B01910A	Transistor 2SC900 (E)
D103, 203	0B01909A	Silicon Diode 1S1555
R309	0B01833A	Carbon Resistor 10K ELR¼, J
R310	0B05558A	Carbon Resistor 100 ELR¼, J
R311	0B05596A	Carbon Resistor 220K ELR¼, J
R312	0B05615A	Carbon Resistor 22K R¼, J
R313	0B01888A	Carbon Resistor 10K R¼, J
C307	0B01862A	Electrolytic Capacitor 22μ 16V
		– Miscellaneous –
	0B07580D	Main Board
SW1	0B07036A	Record Switch
	0B03804F	Record Switch Spring (1 pce.)
	0B03918B	Record Switch Spring Insulator (1 pce.)
	0B08103C	Shield Plate (1 pce.)
	0B01814A	14P Connector (2 pcs.)
	0B01797B	19P Connector (1 pce.)
	0B01800B	Connector Pin (47 pcs.)
	0E00185A	Screw M2x6 Cylinder Head (2 pcs.)
	0E00176A	Nut Hex. M2 (2 pcs.)
	0E00025A	Washer 2mm Steel (2 pcs.)
	BA03658A	**Meter Circuit Ass'y**
	0B07603B	Meter Sub Board (NR)
Q105, 205	0B01910A	Transistor 2SC900 (E)
106, 206		
D101, 201	0B06058A	Zener Diode YZ-051
D102, 202	0B06007A	Silicon Diode KB-165
R126, 226	0B01920A	Carbon Resistor 100K ELR¼, J
R127, 227	0B01833A	Carbon Resistor 10K ELR¼, J
R128, 228	0B05544A	Metal Film Resistor 390K ERO-14 KV, G
R129, 229	0B05766A	Metal Film Resistor 82K ERO-25 KV, G
R130, 230	0B05767A	Metal Film Resistor 13K ERO-25 KV, G
R131, 231	0B05511A	Carbon Resistor 820 ELR¼, J
C120, 220	0B05770A	Electrolytic Capacitor 47μ 16V
C121, 221	0B05769A	Tantalum Capacitor 6.8μ 16V

7.3. Dolby Board Ass'y

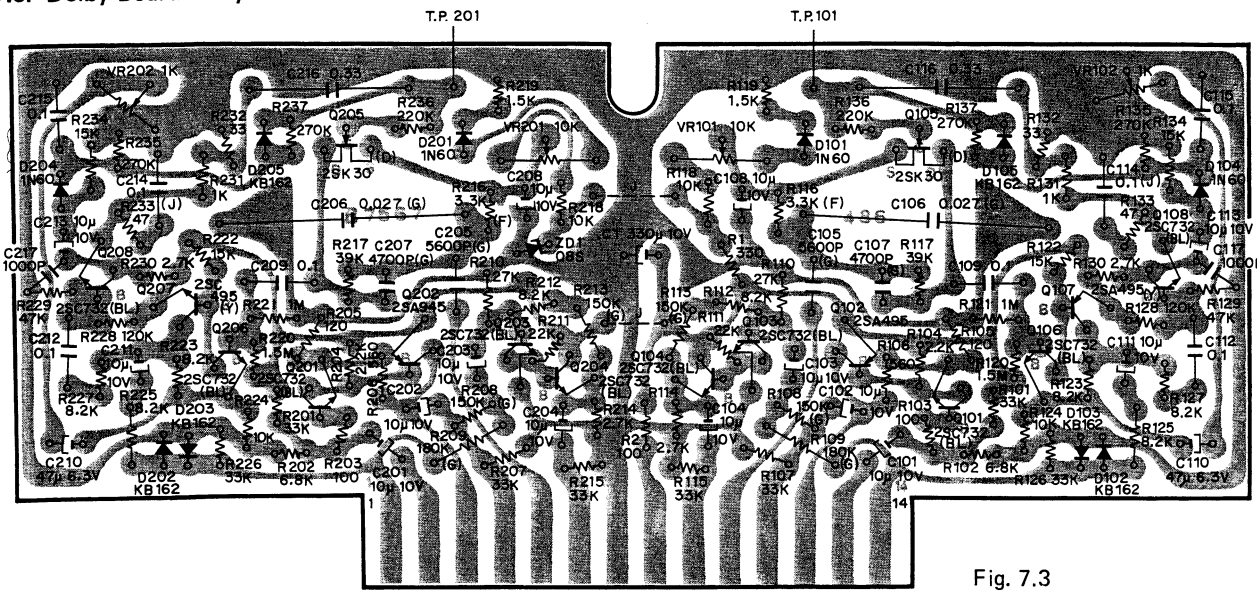

Fig. 7.3

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA03625A	**Dolby Board Ass'y**			R116, 216	0B01585A	Metal Film Resistor	3.3K	ERO-25VK, F
					R117, 217	0B01885A	Carbon Resistor	39K	ELR¼, J
	0B07567C	Dollby PC Board			R118, 218	0B01833A	Carbon Resistor	10K	ELR¼, J
Q101, 201	0B01910A	Transistor	2SC900 (E)		124, 224				
103, 203					R119, 219	0B05505A	Carbon Resistor	1.5K	ELR¼, J
104, 204					R120, 220	0B05601A	Carbon Resistor	1.5M	ELR¼, J
106, 206					R121, 221	0B05564A	Carbon Resistor	1M	ELR¼, J
108, 208					R122, 222	0B05591A	Carbon Resistor	15K	ELR¼, J
Q102, 202	0B06013A	Transistor	2SA733		134, 234				
107, 207					R128, 228	0B05568A	Carbon Resistor	120K	ELR¼, J
Q105, 205	0B06001A	FET	2SK30 (D)		R129, 229	0B05562A	Carbon Resistor	47K	ELR¼, J
D101, 201	0B00030A	Germanium Diode	1N60P		R131, 231	0B01781A	Carbon Resistor	1K	ELR¼, J
104, 204					R132, 232	0B05567A	Carbon Resistor	33	ELR¼, J
D102, 202	0B01599A	Varistor	KB162		R133, 233	0B05569A	Carbon Resistor	47	ELR¼, J
103, 203					R135, 235	0B05600A	Carbon Resistor	270K	ELR¼, J
105, 205					137, 237				
DZ1	0B06004A	Zener Diode	08S		R136, 236	0B05596A	Carbon Resistor	220K	ELR¼, J
R1	0B01789A	Carbon Resistor	330	ELR¼, J	C1	0B01502A	Electrolytic Capacitor	330μ	16V
R2, 103	0B05558A	Carbon Resistor	100	ELR¼, J	C101, 201	0B00078A	Electrolytic Capacitor	10μ	10V
203					102, 202				
R101, 201	0B01879A	Carbon Resistor	33K	ELR¼, J	103, 203				
107, 207					104, 204				
115, 215					108, 208				
126, 226					111, 211				
R102, 202	0B01877A	Carbon Resistor	6.8K	ELR¼, J	113, 213				
R104, 204	0B05566A	Carbon Resistor	2.2K	ELR¼, J	C105, 205	0B01864A	P.P. Capacitor	5600P,	50V, G
R105, 205	0B05570A	Carbon Resistor	120	ELR¼, J	C106, 206	0B01892A	P.P. Capacitor	0.027μ	50V, G
R106, 206	0B05678A	Carbon Resistor	560	ELR¼, J	C107, 207	0B01608A	P.P. Capacitor	4700P,	50V, G
R108, 208	0B01859A	Metal Film Resistor	150K	ERO-25VK, G	C109, 209	0B01603A	Mylar Capacitor	0.1μ,	50V, K
113, 213					112, 212				
R109, 209	0B01590A	Metal Film Resistor	180K	ERO-25VK, G	115, 215				
R110, 210	0B05538A	Carbon Resistor	27K	ELR¼, J	C110, 210	0B01404A	Electrolytic Capacitor	47μ	6.3V
R111, 211	0B05661A	Carbon Resistor	22K	ELR¼, J	C114, 214	0B01780A	Mylar Capacitor	0.1μ	50V, J
R112, 212	0B01878A	Carbon Resistor	8.2K	ELR¼, J	C116, 216	0B01602A	Mylar Capacitor	0.33μ	50V, K
123, 223					C117, 217	0B04059A	Mylar Capacitor	0.001μ	50V, K
125, 225					VR101,201	0B01458A	Semi-fixed Volume	10K	
127, 227					VR102,202	0B01428A	Semi-fixed Volume	1K	
R114, 214	0B01782A	Carbon Resistor	2.7K	ELR¼, J	TP101,201	0B03924A	FET Gate Pin		
130, 230									

7.4. Rec. Cal. Board Ass'y

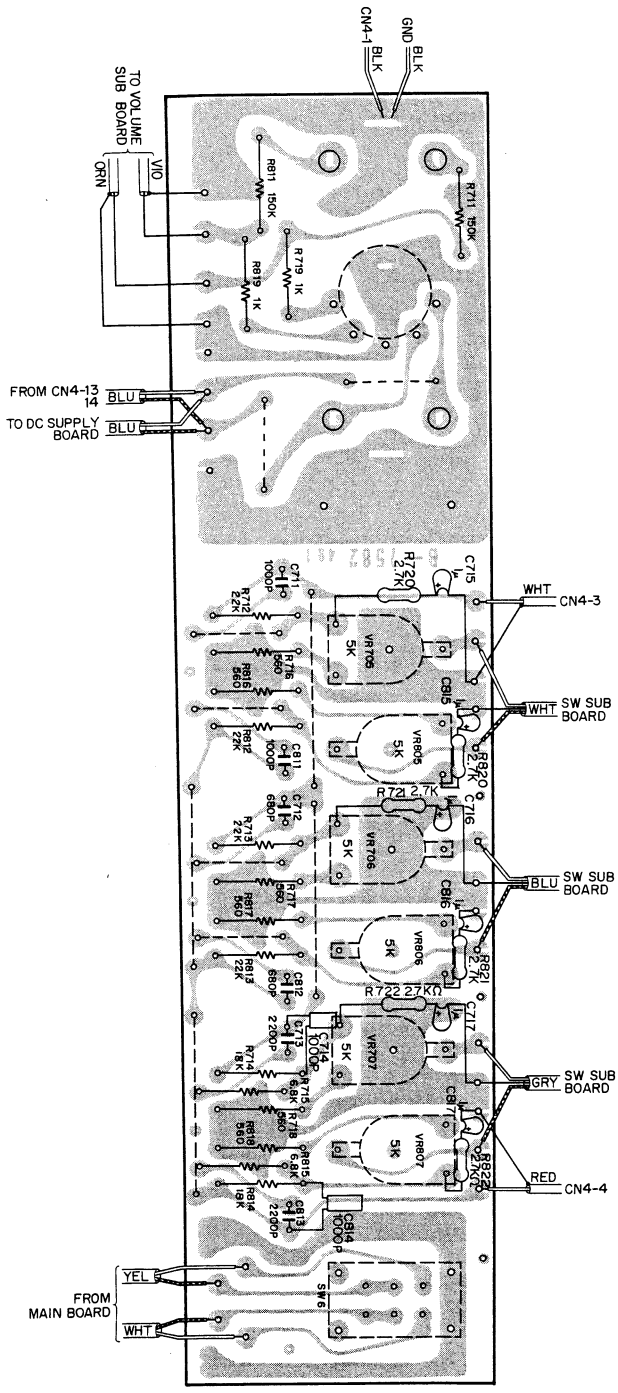

Fig. 7.4

Schematic Ref. No.	Part No.	Description		
	BA03762A	**Rec. Cal. Board Ass'y**		
	0B07582C	Rec. Cal. Board		
R711, 811	0B05626A	Carbon Resistor	150K	R¼, J
R712, 812	0B05615A	Carbon Resistor	22K	R¼, J
713, 813				
R714, 814	0B05560A	Carbon Resistor	18K	R¼, J
R715, 815	0B01854A	Carbon Resistor	39K	R¼, J
R716, 816	0B05575A	Carbon Resistor	560	R¼, J
717, 817				
718, 818				
R719, 819	0B01857A	Carbon Resistor	1K	R¼, J
R720, 820	0B05629A	Carbon Resistor	2.7K	R¼, J
721, 821				
722, 822				
C711, 811	0B04059A	Mylar Capacitor	0.001μ	50V, K
714, 814				
C712, 812	0B01459A	Mylar Capacitor	680P	50V, M
C713, 813	0B04060A	Mylar Capacitor	2200P	50V, K
C715, 815	0B05638A	Tantalum Capacitor	1μ	35V
716, 816				
717, 817				
VR705,805	0B07070A	Semi-fixed Volume	5K	
706,806				
707,807				
SW6	0B07053A	Filter Switch (SL222B4)		
JA5-9	0B08097A	Jack Unit		

7.5. Volume Sub Board Ass'y

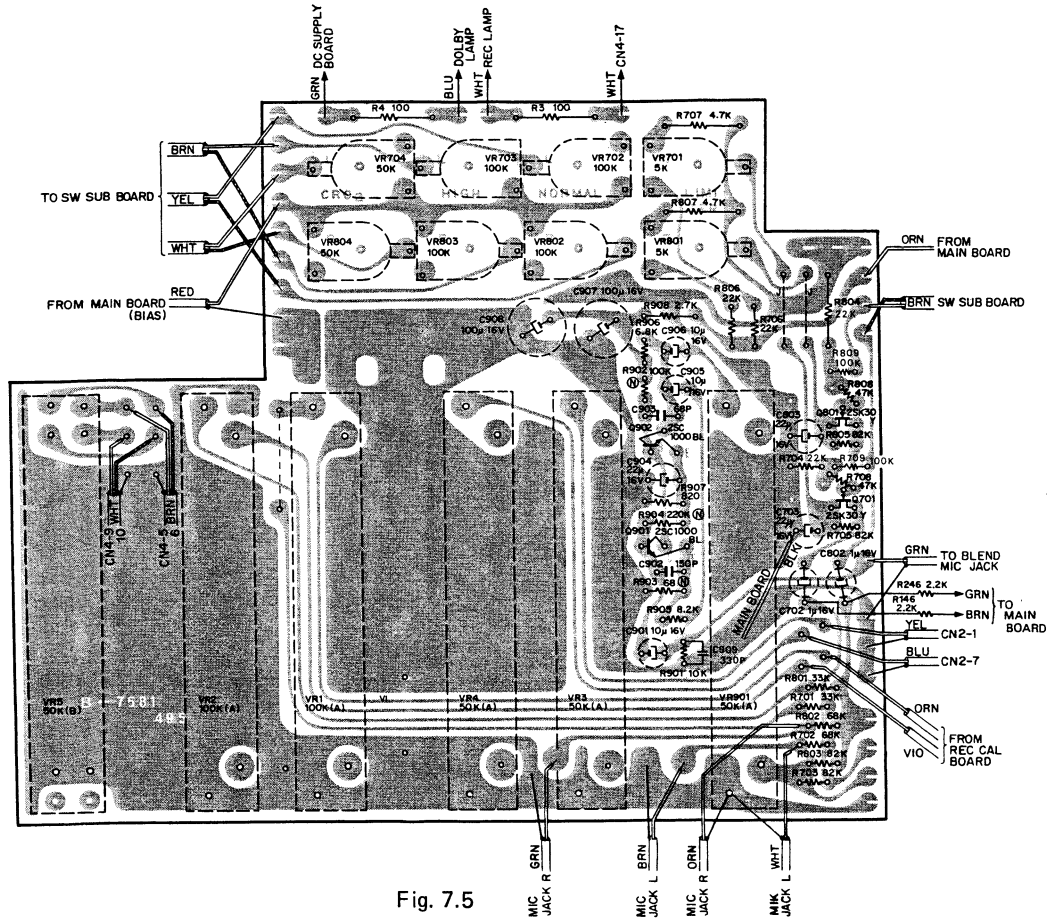

Fig. 7.5

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA03661A	**Volume Sub Board Ass'y**			C903	0B05525A	Ceramic Capacitor	68P	50V, M
					C904	0B01862A	Electrolytic Capacitor	22µ	16V
	0B07581A	Volume Sub Board			C907, 908	0B01400A	Electrolytic Capacitor	100µ	16V
VR1, 2	0B07054A	Slide Volume	100K (A)		C909	0B01180A	Ceramic Capacitor	330P	50V, M
VR3, 4	0B07015A	Slide Volume	50K (A)						
901							**– Limiter –**		
VR5	0B07055A	Slide Volume	50K (B)						
R701, 801	0B01879A	Carbon Resistor	33K	ELR¼, J	Q701, 801	0B01600A	FET	2SK30 (Y)	
R702, 802	0B01902A	Carbon Resistor	100	R¼, J	R704, 804	0B05661A	Carbon Resistor	22K	ELR¼, J
703, 803					706, 806				
					R705, 805	0B01564A	Carbon Resistor	82K	ELR¼, J
		– Blend Mic. AMP. –			R707, 807	0B01846A	Carbon Resistor	4.7K	R¼, J
					R708, 808	0B05562A	Carbon Resistor	47K	ELR¼, J
Q901, 902	0B06003A	Transistor	2SC1000 (BL)		R709, 809	0B01920A	Carbon Resistor	100K	ELR¼, J
R901	0B01833A	Carbon Resistor	10K	ELR¼, J	C702, 802	0B05638A	Tantalum Capacitor	1µ	35V
R902	0B01931A	Carbon Resistor	100K N	ELR¼, J	C703, 803	0B01862A	Electrolytic Capacitor	22µ	16V
R903	0B05683A	Carbon Resistor	68 N	ELR¼, J	VR701,801	0B01805A	Semi-fixed Volume	5K	
R904	0B05517A	Carbon Resistor	220K N	ELR¼, J					
R905	0B01878A	Carbon Resistor	8.2K	ELR¼, J			**– Bias Adj. Volume –**		
R906	0B01877A	Carbon Resistor	6.8K	ELR¼, J					
R907	0B05511A	Carbon Resistor	820	ELR¼, J	VR702,802	0B01812A	Semi-fixed Volume	100K	
R908	0B01782A	Carbon Resistor	2.7K	ELR¼, J	703,803				
C901, 905	0B01412A	Electrolytic Capacitor	10µ	16V	VR704,804	0B01807A	Semi-fixed Volume	50K	
906					R146,246	0B05522A	Carbon Resistor	2.2K	ERD-25T, J
C902	0B05599A	Ceramic Capacitor	150P	50V, M		0B04042A	1L 2P Lug Terminal (1 pce.)		

7.6. Switch Sub Board Ass'y

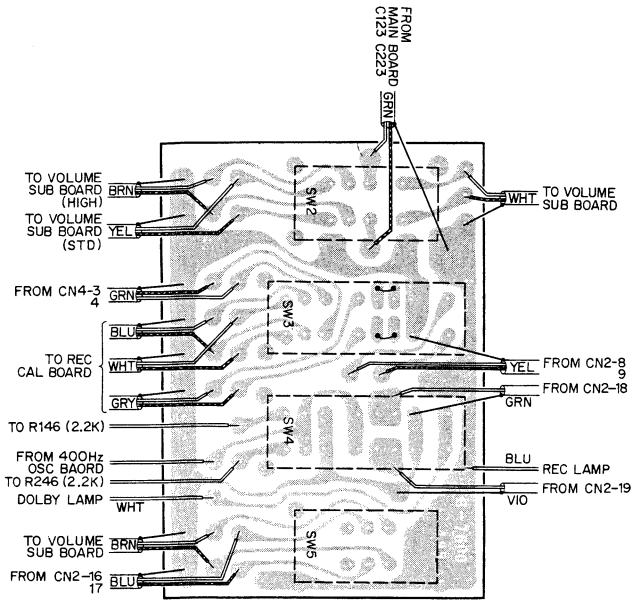

Fig. 7.6

7.7. 400 Hz OSC. Board Ass'y

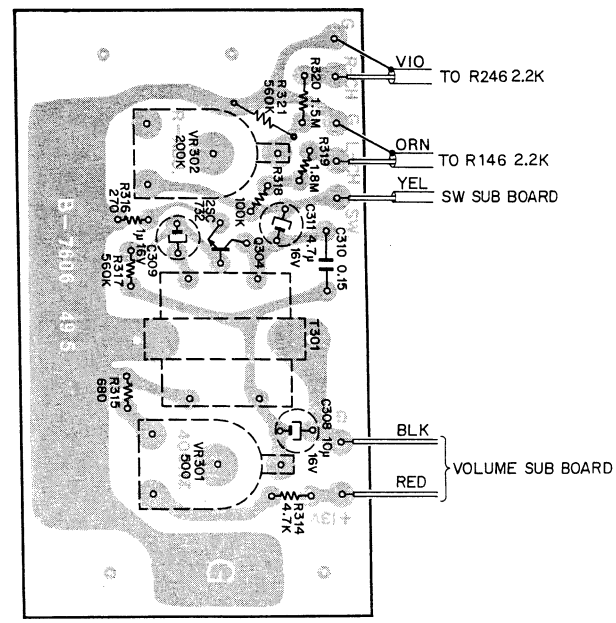

Fig. 7.7

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA03657A	**Switch Sub Board Ass'y**		**BA03659A**	**400Hz OSC. Board Ass'y**
	0B07600B	Switch Sub Board (NR)		0B07606A	400Hz OSC. Board (NR)
SW2	0B07048A	Lever Switch 2-3	Q304	0B01910A	Transistor 2SC900 (E)
SW3, 4	0B07049A	Lever Switch 4-3	T302	0B03879A	Headphone Transformer
SW5	0B07047A	Lever Switch 2-2	R314	0B01795A	Carbon Resistor 4.7K ELR¼, J
			R315	0B05559A	Carbon Resistor 680 ELR¼, J
			R316	0B05651A	Carbon Resistor 270 ELR¼, J
			R317, 321	0B05665A	Carbon Resistor 560K ELR¼, J
			R318	0B01920A	Carbon Resistor 100K ELR¼, J
			R319	0B05670A	Carbon Resistor 1.8M ELR¼, J
			R320	0B05601A	Carbon Resistor 1.5M ELR¼, J
			C308	0B01412A	Electrolytic Capacitor 10μ 16V
			C309	0B01405A	Electrolytic Capacitor 1μ 16V
			C310	0B05551A	Mylar Capacitor 0.15μ 50V, K
			C311	0B01389A	Electrolytic Capacitor 4.7μ 16V
			VR301	0B01596A	Semi-fixed Volume 500-ohm
			VR302	0B01597A	Semi-fixed Volume 200K

7.8. MHX Governor B

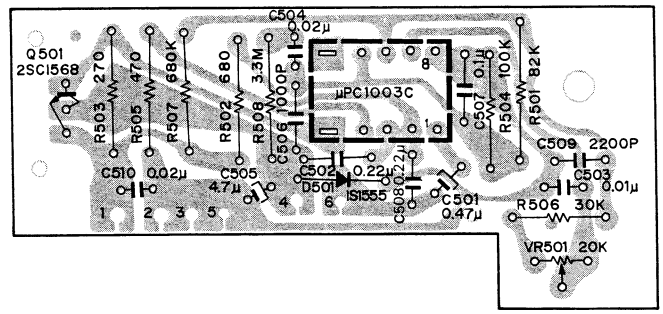

Fig. 7.8

7.9. MHX Shut-off A Ass'y

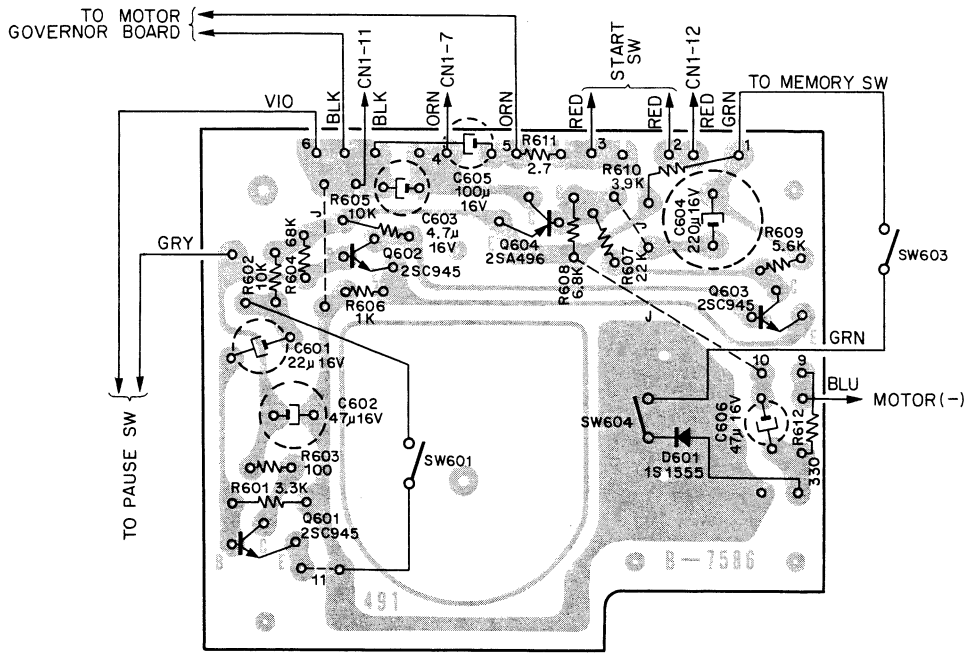

Fig. 7.9

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	0B08204A	**MHX Governor B**	R604	0B01902A	Carbon Resistor 68K ERD-14V, J
			R606	0B01781A	Carbon Resistor 1K ERD-14V, J
	CA03251A	**MHX Shut-off A Ass'y**	R607	0B05566A	Carbon Resistor 2.2K ERD-14V, J
			R608	0B01877A	Carbon Resistor 6.8K ERD-14V, J
	0B07586C	Shut-off Board (GM)	R609	0B05673A	Carbon Resistor 5.6K ERD-14V, J
Q601, 602 603	0B01872A	Transistor 2SC945	R610	0B05664A	Carbon Resistor 3.9K ERD-14V, J
			R611	0B05836A	Carbon Resistor 2.7 ERD-14V, J
Q604	0B01695A	Transistor 2SA496	R612	0B01789A	Carbon Resistor 330 ERD-14V, J
D601	0B01909A	Silicon Diode 1S1555	C601	0B01862A	Electrolytic Capacitor 22μ 16V
R601	0B01793A	Carbon Resistor 3.3K ERD-14V, J	C602, 606	0B01403A	Electrolytic Capacitor 47μ 16V
R602, 605	0B01833A	Carbon Resistor 10K ERD-14V, J	C603	0B01389A	Electrolytic Capacitor 4.7μ 16V
R603	0B05558A	Carbon Resistor 100 ERD-14V, J	C604	0B01398A	Electrolytic Capacitor 220μ 16V
			C605	0B01400A	Electrolytic Capacitor 100μ 16V

7.10. DC Supply P.C.B. Ass'y

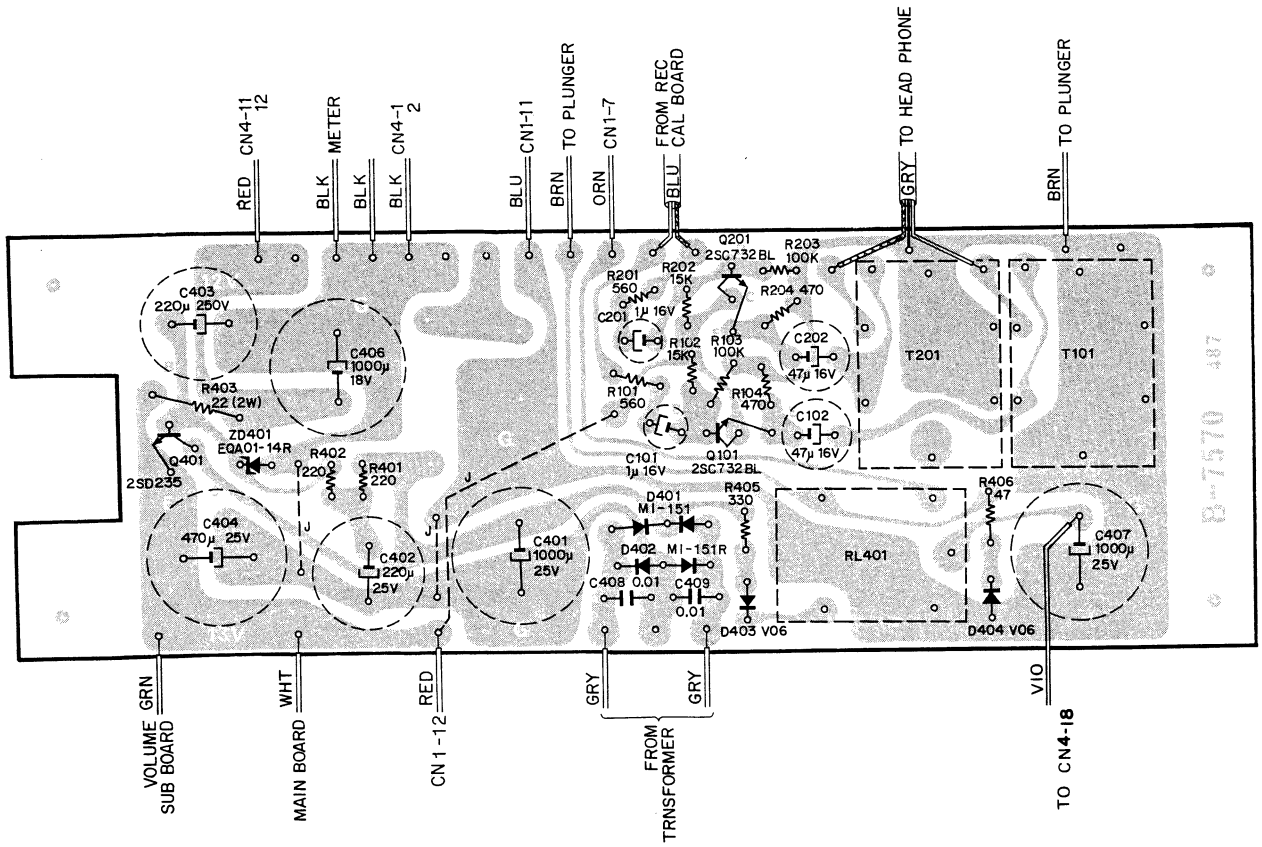

Fig. 7.10

Schematic Ref. No.	Part No.	Description
	BA03787A	**DC Supply P.C.B. Ass'y**
		– DC Supply Circuit –
Q401	0B01823A	Transistor 2SD235
D401	0B06092U	Silicon Diode MI-151
D402	0B06093U	Silicon Diode MI-151R
ZD401	0B06023A	Zener Diode EQA01-14R
R401, 402	0B05608A	Carbon Resistor 220 ELR¼, J
R403	0B05757A	Metal Film Resistor 22 2W
C401	0B01870A	Electrolytic Capacitor 1000μ 25V
C402, 403	0B01391A	Electrolytic Capacitor 220μ 25V
C404	0B01401A	Electrolytic Capacitor 470μ 25V
C406	0B01673A	Electrolytic Capacitor 1000μ 18V
C408, 409	0B01290A	Ceramic Capacitor 0.01μ 50V, M
		– Relay Circuit –
D403, 404	0B01501U	Silicon Diode V06-C
R405	0B01365A	Carbon Resistor 330 R50, J
R406	0B05569A	Carbon Resistor 47 ELR¼, J
C407	0B01870A	Electrolytic Capacitor 1000μ 25V
RL401	0B07001A	Relay LC1-C

Schematic Ref. No.	Part No.	Description
		– Headphone Circuit –
Q101, 201	0B01910A	Transistor 2SC900 (E)
R101, 201	0B05678A	Carbon Resistor 560 ELR¼, J
R102, 202	0B05591A	Carbon Resistor 15K ELR¼, J
R103, 203	0B01920A	Carbon Resistor 100K ELR¼, J
R104, 204	0B05572A	Carbon Resistor 470 R50, J
C101, 201	0B01405A	Electrolytic Capacitor 1μ 16V
C102, 202	0B01403A	Electrolytic Capacitor 47μ 16V
T101, 201	0B03879A	Headphone Transformer
	0B07570A	DC Supply Board
	0J03278B	Heat Sink GM (1 pce.)
	0E00037A	Earth Lug B-5 (1 pce.)
	0E00607A	Screw M3x8 Philips Pan Head (3A) (2 pcs.)
	0E00608A	Screw M3x10 Philips Pan Head (3A) (1 pce.)
	0E00507A	Nut Hex. M3 (3 pcs.)

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Auto Shut-off Ass'y (4)

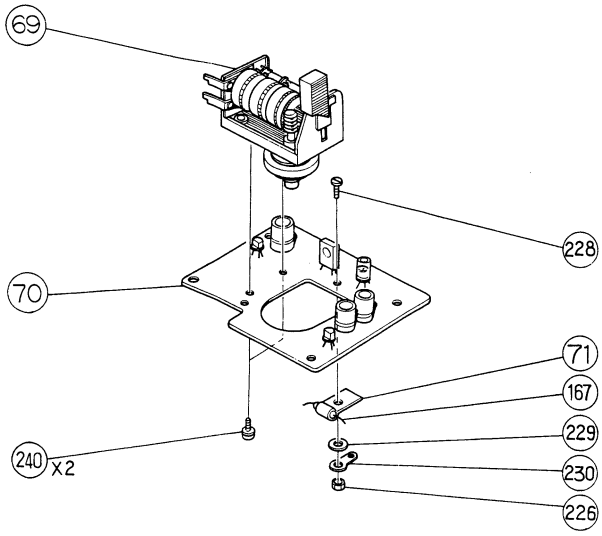

Fig. 8.1

8.2. Head Base B Ass'y (12)

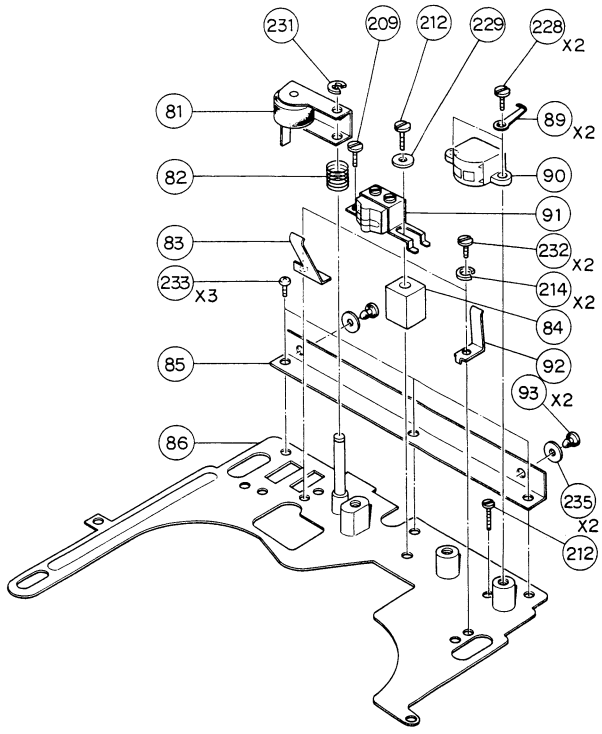

Fig. 8.2

8.3. Mechanism Bracket L Ass'y and Mechanism Bracket R Ass'y (14, 24)

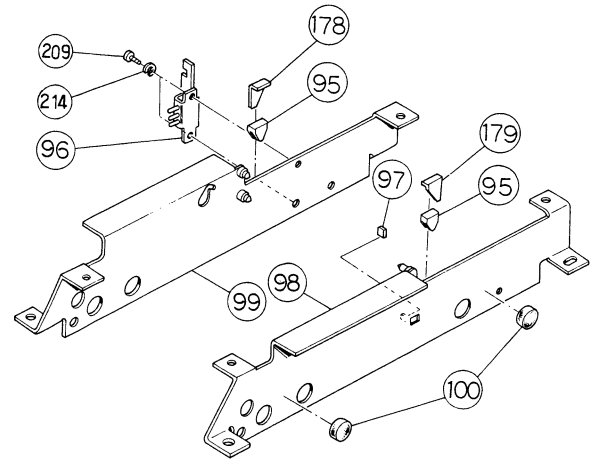

Fig. 8.3

8.4. MHX Motor Ass'y B (55)

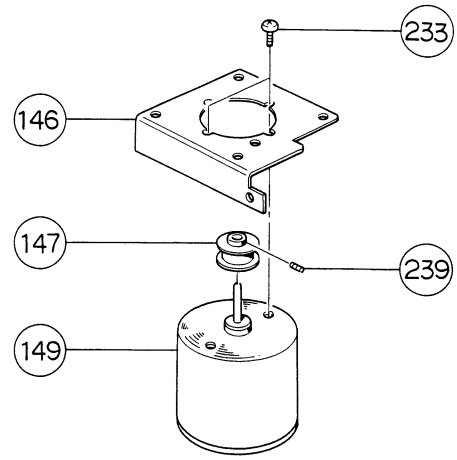

Fig. 8.4

8.5. Flywheel Holder Ass'y (28)

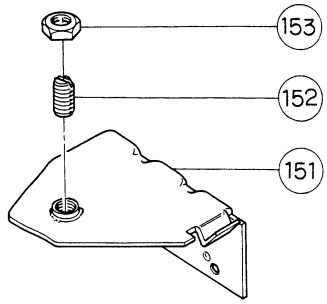

Fig. 8.5

8.6. Motor Cover Ass'y (68)

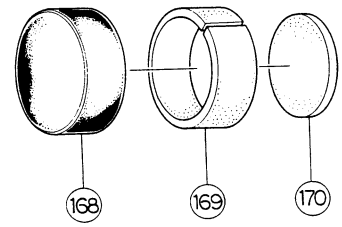

Fig. 8.6

Schematic Ref. No.	Part No.	Description
4	**CA03208B**	**Auto Shut-off Ass'y**
69	CA03242A	Tape Counter
70	CA03251A	MHX Shut-off A Ass'y
71	0C03763A	Reed Switch Holder
167	0B03803A	Reed Switch ORD222
226	0E00176A	Nut Hex. M2
228	0E00185A	Screw M2x6 Cylinder Head
229	0E00149A	Washer 2.3mm Steel
230	0E00130A	Earth Lug 2.6mm
240	0E00612A	Screw M3x6 Philips Pan Head (2A)
12	**CA03216A**	**Head Base B Ass'y**
81	CA03159B	Pressure Roller Ass'y B
82	0C03758B	Pressure Roller Spring B
83	0C03691A	Cassette Retainer Spring R
84	0C03588A	Azimuth Adjust Rubber
85	0C03692D	Base Angle
86	CA03217A	Head Base C Sub Ass'y
89	0C03591B	Cord Holder
90	0C03862B	Erase Head Ass'y (E-50S)
91	CA03207B	Record/Playback Head (RP-52)
92	0C03690A	Cassette Retainer Spring L
93	0C03767A	Base Stopper Rubber
209	0E00166A	Screw M2x4 Cylinder Head
212	0E00218A	Screw M2x10 Cylinder Head
214	0E00025A	Washer 2mm Spring
228	0E00185A	Screw M2x6 Cylinder Head
229	0E00149A	Washer 2.3mm Steel
231	0E00042A	E-Ring 1.5mm
232	0E00002A	Screw M2x3 Cylinder Head
233	0E00120A	Screw M2.6x3 Philips Pan Head
235	0E00030A	Washer 3mm Steel
14	**CA03171A**	**Mechanism Bracket L Ass'y**
95	0C03790B	Lid Stopper
96	0B07051A	Memory Switch
99	CA03223A	Mechanism Bracket L Sub Ass'y
209	0E00166A	Screw M2x4 Cylinder Head
214	0E00025A	Washer 2mm Steel

Schematic Ref. No.	Part No.	Description
24	**CA03172A**	**Mechanism Bracket R Ass'y**
95	0C03790A	Lid Stopper
97	0C03764B	Well Stopper Rubber
98	CA03224A	Mechanism Bracket R Sub Ass'y
100	0B03671A	Board Stopper B
55	**CA03253B**	**MHX Motor Ass'y B**
146	0C03976A	Motor Bracket C
147	0C03770B	Motor Pulley JA
149	0C03950A	MHX Motor B
233	0E00120A	Screw M2.6x3 Philips Pan Head
239	0E00224A	Screw M2x3 Cup Point
28	**CA03226B**	**Flywheel Holder Ass'y C**
151	CA03280A	Flywheel Holder Sub Ass'y C
152	CA03281A	Thrust Screw Ass'y
153	0C03857A	Lock Nut
68	**CA03187A**	**Motor Cover Ass'y**
168	0C03796A	Motor Cap
169	0C03794A	Motor Cover A
170	0C03795A	Motor Cover B

8.7. Transport Mechanism 1

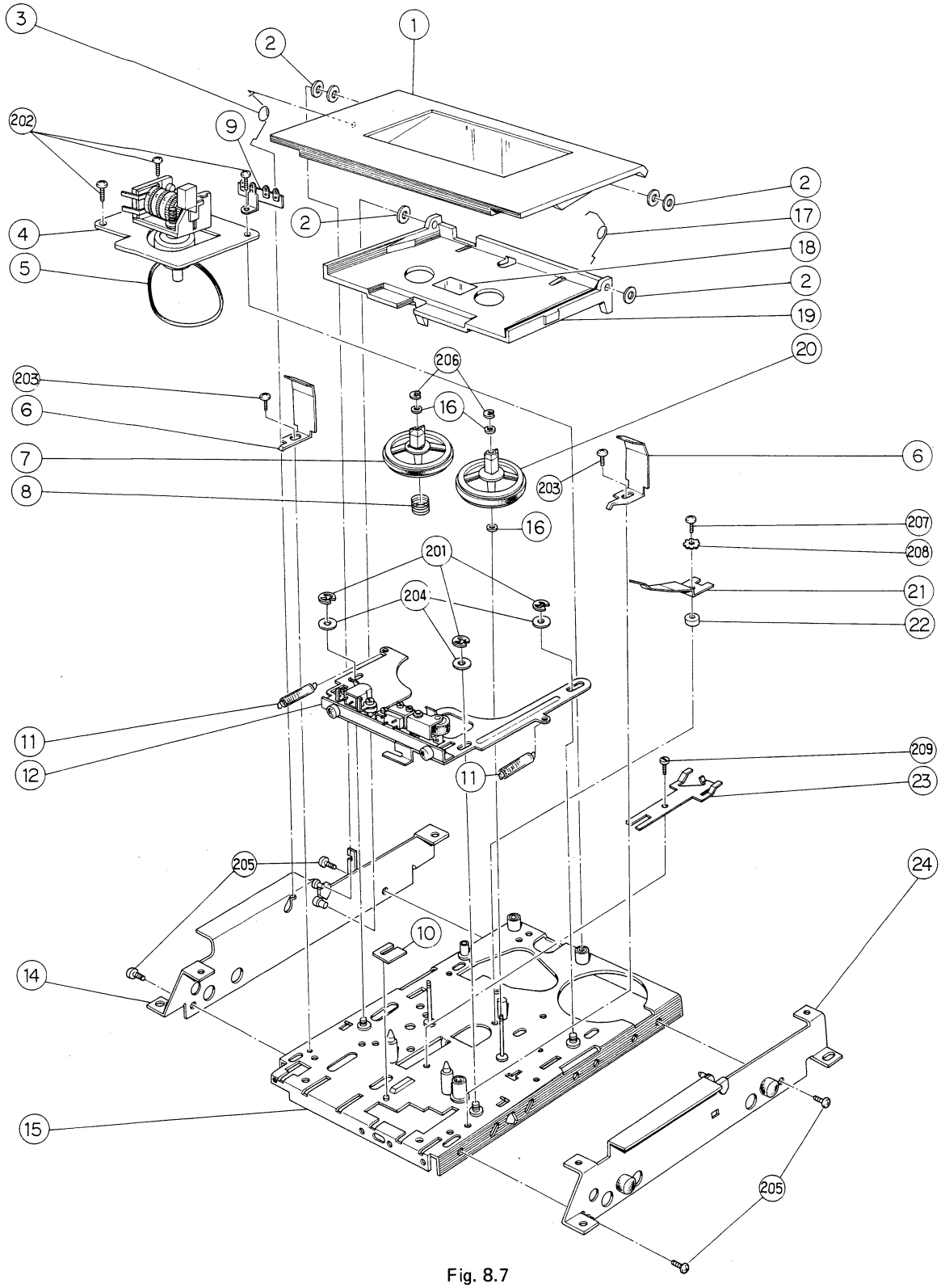

Fig. 8.7

Schematic Ref. No.	Part No.	Description
1	0C03736C	Cassette Lid
2	0E00254A	Washer 3.1mm Plastics
3	0C03759D	Lid Spring Left
4	CA03208B	Auto Shut-off Ass'y
5	0C03651A	Counter Belt E
6	0C03975A	Cassette Guide C
7	CA03192A	Reel Hub Ass'y (Supply)
8	0C03612C	Back Tension Spring
9	0B01908A	1L 3P Terminal
10	0C03863A	Head Base Spacer
11	0C03694B	Base Return Spring
12	CA03216A	Head Base B Ass'y
14	CA03171A	Mechanism Bracket L Ass'y
15	CA03229C	Mechanism Chassis Ass'y C
16	0C03613A	Washer 1.6mm Plastics
17	0C03760D	Lid Spring Right
18	0M03167A	Silver Seal B
19	0C03699K	Cassette Well
20	CA03193A	Reel Hub Ass'y (Take-up)
21	0C03973A	Cassette Well Spring D
22	0C03706A	Cassette Well Spring Stud
23	CA03140A	Brake Ass'y
24	CA03172A	Mechanism Bracket R Ass'y
201	0E00181A	E-Ring 3mm
202	0E00219A	Screw M2.6x5 Philips Pan Head
203	0E00226A	Screw M2.6x4 Philips Pan Head
204	0C06243A	Washer W4-8-0.2F
205	0E00502A	Screw M3x5 Philips Pan Head
206	0E00165A	E-Ring 1.2mm
207	0E00231A	Screw M2.6x8 (7.7) Philips Pan Head
208	0E00233A	Washer 2.6mm Toothed Lock
209	0E00166A	Screw M2x4 Cylinder Head
	0T04025A	Ceramic Capacitor 1000P (2 pcs.)

8.8. Transport Mechanism 2

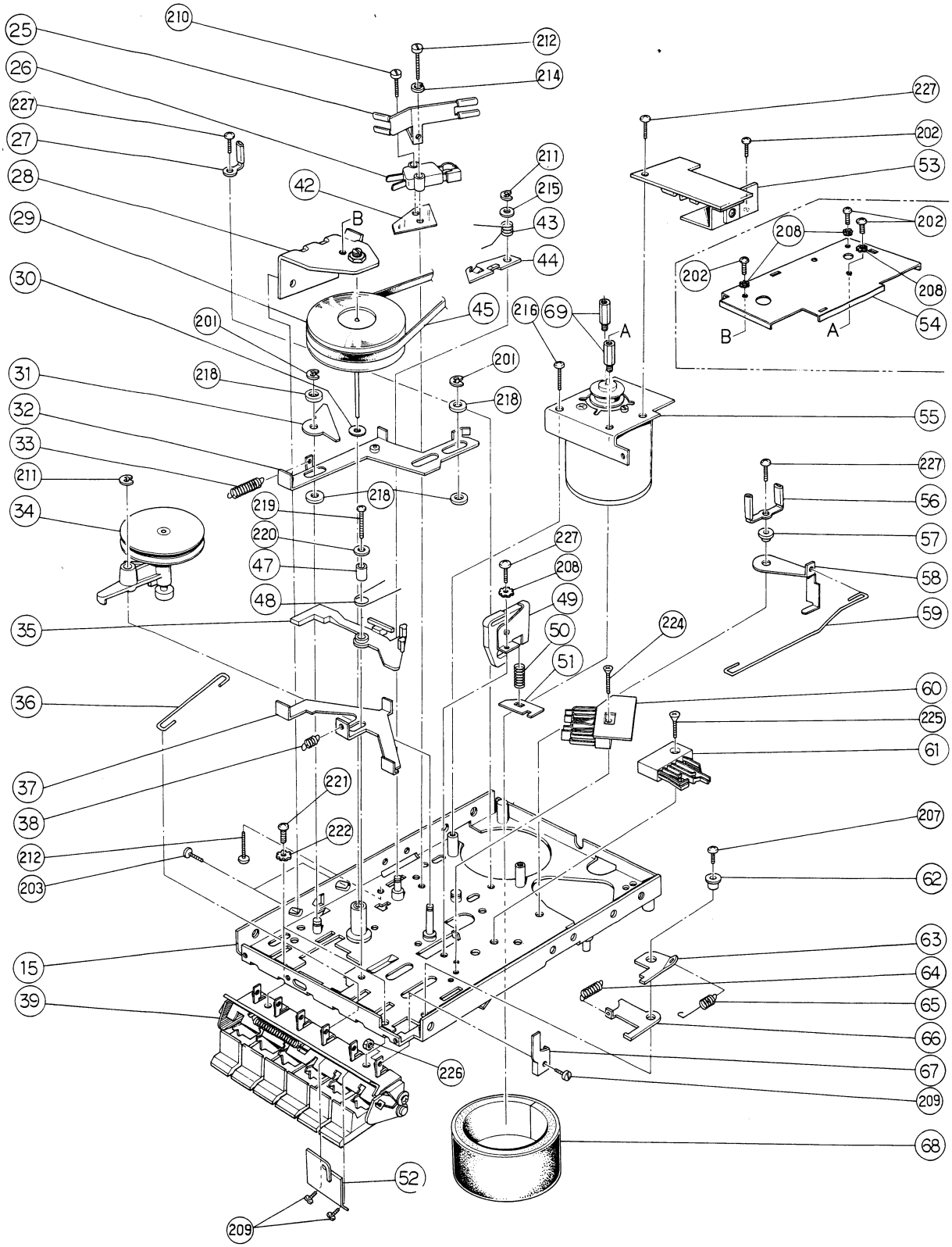

Fig. 8.8

Schematic Ref. No.	Part No.	Description
25	0C03799E	Belt Guide
26	0C03743A	Pause Switch
27	0C03591B	Cord Holder
28	CA03226B	Flywheel Holder Ass'y C
29	CA03225B	Flywheel B Ass'y
30	0C03174A	Washer 2.1mm Plastics
31	0C03746C	Pause Bar
32	CA03167A	Slide Plate Ass'y
33	0C03748A	Slide Plate Spring
34	CA03301B	Idler Pulley Ass'y
35	0C03646B	FRP Lever B
36	0C03553B	Eject Linkage Wire
37	0C03647B	See-Saw Arm
38	0C03649A	See-Saw Arm Spring
39	CA03230A	Button Bracket Ass'y B
42	0C03800A	Pause Switch Mylar
43	0C03747A	Lock Lever Spring
44	0C03084A	Pause Lock Lever
45	0C03668B	Driving Belt
47	0C03648A	See-Saw Arm Pipe
48	0C03650B	Lever Spring
49	CA03118A	Eject Arm Ass'y
50	0C03873B	Eject Spring
51	0C03644C	Spring Stopper
52	0C03823C	Solenoid Connection Plate C
53	0B08204A	MHX Governor B
54	0C03970B	Shield Cover
55	CA03253B	MHX Motor Ass'y B
56	0B03067A	Bind Holder
57	0C03546A	Record Lock Shaft
58	0C03703B	Record Sensor B
59	0C03704A	Record Sensor Linkage B
60	CA03231A	Start Switch Ass'y C
61	CA03141A	Mute Switch Ass'y
62	0C03775C	Base Cam Shaft
63	0C03652C	Record Lock B
64	0C03774A	Base Cam Spring
65	0C03791A	Record Lock Spring B
66	0C03773C	Base Cam
67	0C03727B	Record Cam Link
68	CA03187A	Motor Cover Ass'y
69	0C03971B	Shield Cover Stud
210	0E00004A	Screw M2x8 Cylinder Head
211	0E00222A	E-Ring 2mm
212	0E00218A	Screw M2x10 Cylinder Head
214	0E00025A	Washer 2mm Spring
215	0E00253A	Washer 3.3mm Steel
216	0E00220A	Screw M2.6x8 Philips Pan Head
217	0E00181A	E-Ring 3mm
218	0E00031A	Washer 4mm Steel
219	0E00229A	Screw M2.6x10 Philips Pan Head
220	0E00142A	Washer 2.6mm Steel
221	0E00509A	Screw M3x6 Philips Pan Head
222	0E00172A	Washer 3mm Toothed Lock
224	0E00223A	Screw M2x10 Flat Head
225	0E00008A	Screw M2.6x8 Flat Head
226	0E00176A	Nut Hex. M2
227	0E00228A	Screw M2.6x6 Philis Pan Head (FT)

Schematic Ref. No.	Part No.	Description
39	**CA03230A**	**Deck Button Ass'y**
	0C03609A	Lock Spring A
	0C03677A	Lock Plate Stopper
	0C03560A	Button Shaft
	0C03861A	Button Cam B
	0C03752E	Deck Button SS
	0C03558C	Cam Spring
	0C03554E	Button Bracket
	0C03555D	Button Cam
	0C03735D	Cam Spring B
	CA03168A	Lock Plate Ass'y
	0C03783A	Stud B
	0E00166A	Screw M2x4 Cylinder Head
	0E00181A	E-Ring 3mm
	0E00184A	Screw M2.6x6 Flat Head
	0E00030A	Washer 3mm Steel

8.9. Cabinet

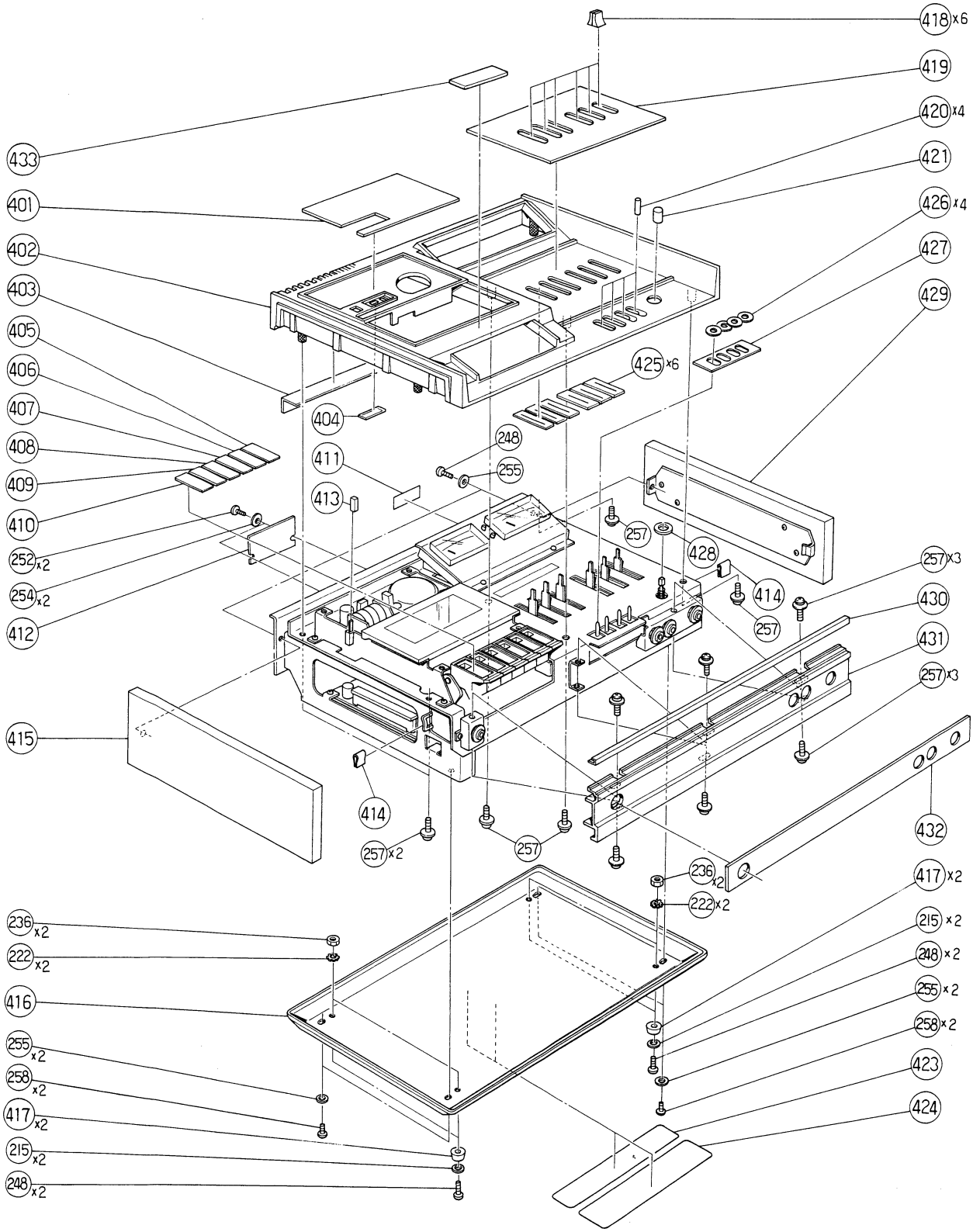

Fig. 8.9

Schematic Ref. No.	Part No.	Description
	HA03724A	**Top Cover Ass'y**
401	0M03852A	Counter Panel (N-500)
402	HA03685B	Top Cover Sub Ass'y
403	0A03197A	Top Cover Himelon
404	0H03099A	Counter Lens V
419	0M03489B	Control Name Plate (N-500)
425	0H03294A	Volume Shade
433	0M03840B	SH Badge
	HA03591A	**Bottom Cover Ass'y**
416	0A03071A	Bottom Cover
417	0A00518D	Rubber Foot
423	0M03330A	Dolby Label
424	0M03339A	Caution Label
215	0E00253A	Washer 3mm Steel
222	0E00172A	Washer 3mm Toothed Lock
236	0E00507A	Nut Hex. M3
248	0E00588A	Screw M3x8 Philips Pan Head (Bronze)
	HA03596A	**Front Pannel Ass'y**
430	0A03193B	Sash GM
431	0H03348B	Front Panel (N-500)
432	0M03490B	Front Name Plate (N-500)
405	0M03568A	Pause Name Plate
406	0M03567A	FF Name Plate
407	0M03566A	PLAY Name Plate
408	0M03565A	STOP Name Plate
409	0M03564A	REW Name Plate
410	0M03563A	REC Name Plate
412	0M03851A	Model Name Plate (N-500)
413	0H03324B	Memory Switch Button
414	0A03032B	Side Plate Spring
415	HA03025A	Side Plate L Ass'y
418	0H03196B	Slide Volume Knob
420	0H03310B	Switch Cap
421	0H03248C	Switch Button
426	0H03338A	Switch Shade B
427	0H03337A	Switch Shade A
428	0H03313B	Switch Shade
429	HA03024A	Side Plate R Ass'y
248	0E00588A	Screw M3x8 Philips Pan Head
252	0E00592A	Screw M2.6x4 Philips Pan Head
254	0E00651A	Washer 2.6mm Plastics
255	0E00157A	Washer 3mm Plastics
257	0E00607A	Screw M3x8 Philips Pan Head (3A)
258	0E00593A	Screw M3x6 Philips Pan Head

8.10. Chassis

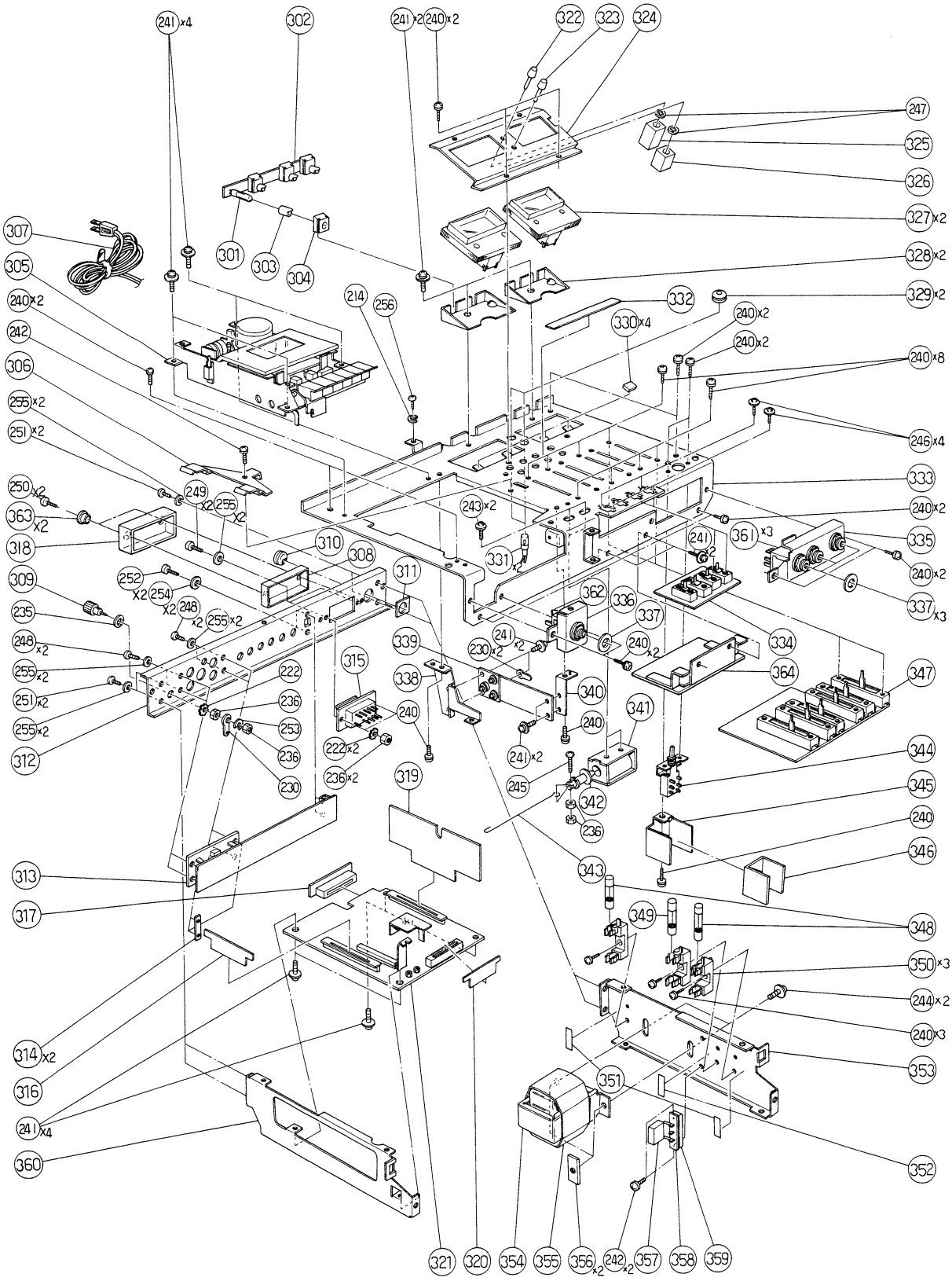

Fig. 8.10

Schematic Ref. No.	Part No.	Description
301	0B08101A	Meter Lamp 6.3V, 0.2A
302	0B07599U	Lamp PC Board
303	0J03373B	Lamp Shield B
304	0J03374A	Meter Lamp Hold B
305	CA03228A	Mechanism Ass'y
306	0B03843A	Dolby PC Board Holder
307	0B08350A	Power Cord
308	0H03335A	Voltage Selector Socket Cover
309	0B03920B	Ground Terminal
310	0B08037U	Cord Bushing C
311	0A03154B	Cord Spacer
312	0J03472B	Rear Panel (N-500)
313	BA03762A	Record CAL. Board Ass'y
314	0J03277A	Metal Seat Nut
315	0B03877B	Voltage Selector Socket
316	0B01651B	14P Plug Board
317	BA03694A	19P Sub Board Ass'y
318	0H03334B	Voltage Selector Socket Acrylic Cover
319	BA03625A	Dolby Board Ass'y
320	0B07629A	19P Plug Board
321	BA03682A	Main Board Ass'y
322	0H03141B	Lamp Cover CN1 (Red)
323	0H03142B	Lamp Cover CN2 (Green)
324	0H03345A	Meter Holder (N-500)
325	0J03321A	Light Intercepting Pipe GA
326	0J03322A	Light Intercepting Pipe GB
327	0B08111A	Level Meter
328	0J03315B	Reflecting Plate
329	0B01431A	Rubber Bush
330	0B03939A	Meter Cushion
331	0B03884A	Pilot Lamp 12V, 25mA
332	0M03662A	Adj. Indicator Lavel
333	JA03254A	Main Chassis Ass'y
334	BA03657A	Switch Sub Board Ass'y
335	0J03261B	Jack Holder
336	0J03264B	Headphone Holder
337	0J03236B	Jack Cover
338	0J03267D	Main PC Board Holder
339	BA03787A	D.C. Supply Board Ass'y
340	0J03340B	D.C. Supply Board Holder
341	0B08092A	Solenoid
342	0B08099A	Solenoid Mylar
343	0J03273C	Solenoid Connection Plate
344	0B03771A	Power Switch
345	0J03263C	Power Switch Cover
346	0B08110B	Shield Plate
347	BA03661A	Volume Sub Board Ass'y
348	0B08100U	Fuse 250V, 2A
349	0B08098U	Fuse 250V, 315mA
350	0B08048U	Fuse Holder
351	0M03448A	Fuse Label 2A
352	0M03449A	Fuse Label 315mA
353	0J03255E	Chassis Right
354	0B06520U	Power Trans
355	0J03051A	Trans Shield Plate
356	0C01162B	Metal Seat Nut
357	0B03873U	Spark Killer
358	0B08030U	3P Terminal Insulator
359	0B08024U	3P Terminal Strip
360	0J03256C	Chassis Left
361	0B03881A	Mic Jack
362	0B03882A	Headphone Jack
363	0H03366A	Washer for Voltage Selector Cover
364	BA03659A	400Hz OSC Board Ass'y
365	0J03327A	Blue Filter
	0B04042A	3P Lug Terminal
R146, 246	0B05566A	Carbon Resistor 2.2K ELR¼, J
R721, 821	0B05698A	Carbon Resistor 1.5K R¼, J
909		
C718, 818	0T04027A	Ceramic Capacitor 680P, 50V, M
910		
214	0E00025A	Washer 2mm Spring
222	0E00172A	Washer 3mm Toothed Lock
230	0E00037A	Earth Lug B-5
235	0E00030A	Washer 3mm Steel
236	0E00507A	Nut Hex. M3
240	0E00612A	Screw M3x6 Philips Pan Head (2A)
241	0E00606A	Screw M3x6 Philips Pan Head (3A)
242	0E00510A	Screw M3x8 Philips Pan Head (2A)
243	0E00618A	Screw M3x4 (Triple) Philips Pan Head
244	0E00643A	Screw M4x8 Philips Pan Head (3A)
245	0E00514A	Screw M3x15 Philips Pan Head
246	0E00259A	Screw M2.6x4 (Triple) Philips Pan Head
247	0E00252A	Washer 3mm CS type
248	0E00588A	Screw M3x8 Philips Pan Head
249	0E00590A	Screw M3x12 Philips Pan Head
251	0E00589A	Screw M3x6 Philips Pan Head
252	0E00592A	Screw M2.6x4 Philips Pan Head
253	0E00581A	Washer 3mm Spring
254	0E00651A	Washer 2.6mm Plastic
255	0E00157A	Washer 3mm Plastic
256	0E00124A	Screw M2x4 Philips Pan Head
257	0E00591A	Screw M3x20 Philips Pan Head

9. BLOCK DIAGRAM

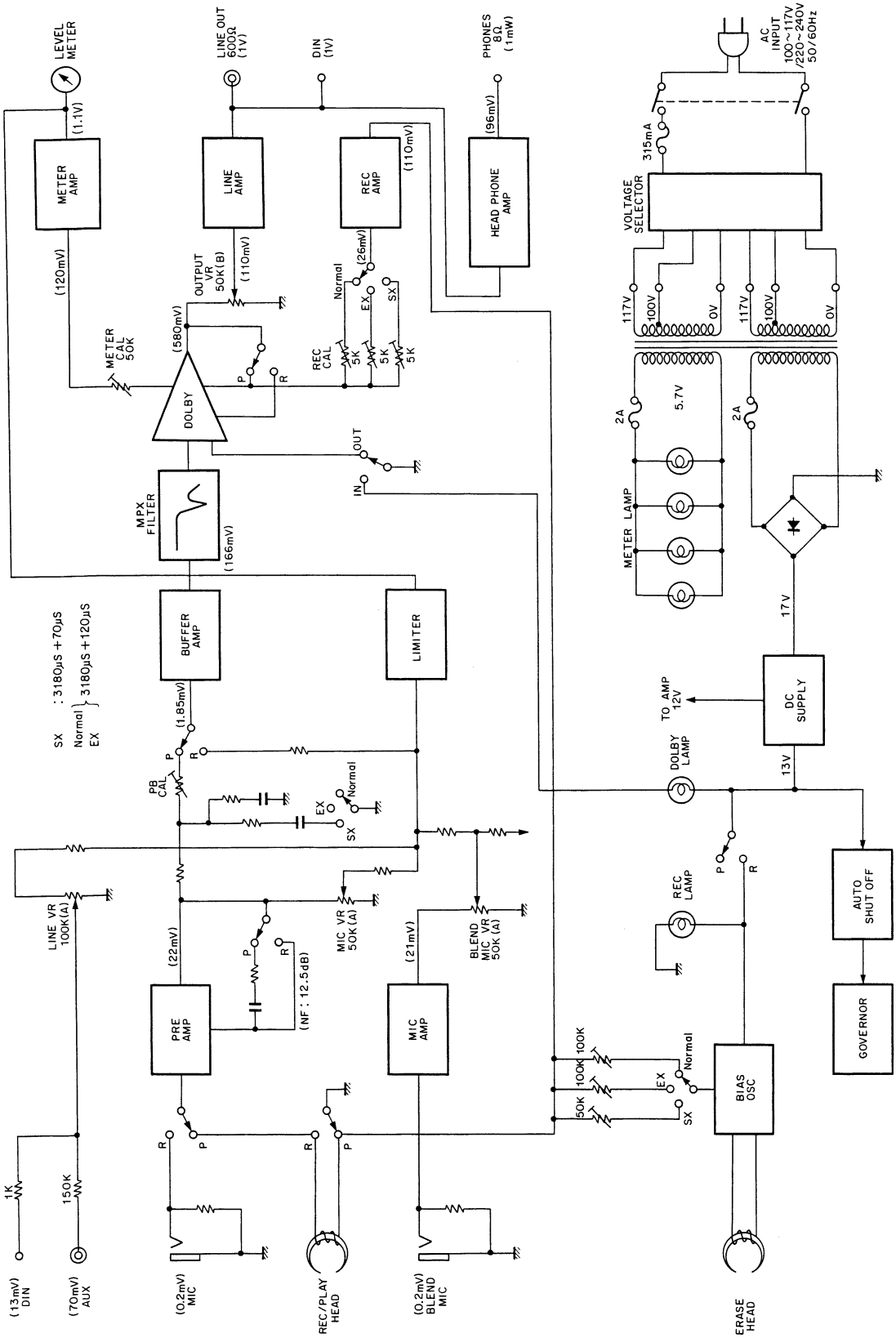

Fig. 9

10. SCHEMATIC DIAGRAMS

10.1. Amplifier

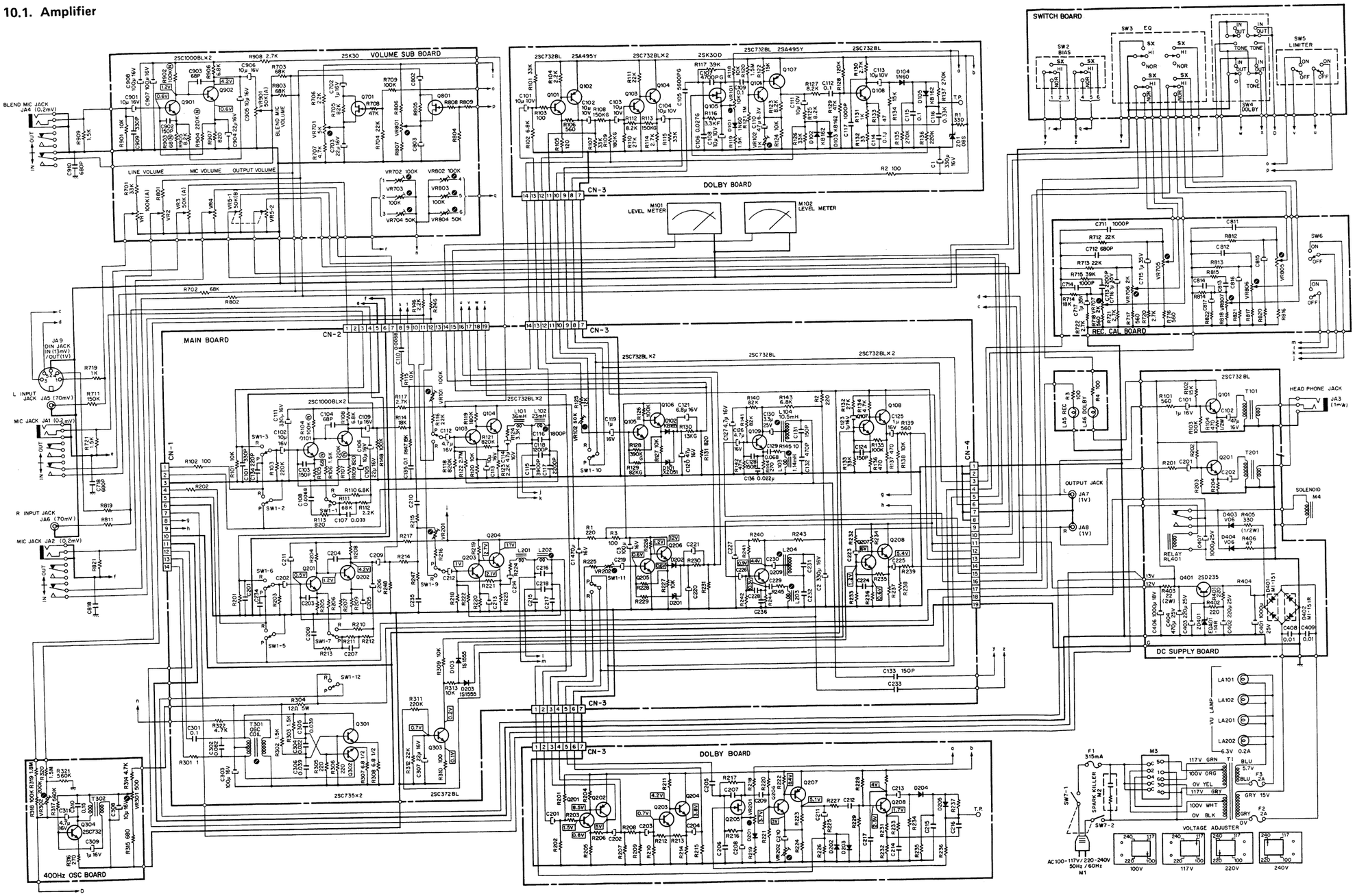

Fig. 10.1

10.2. Mechanism

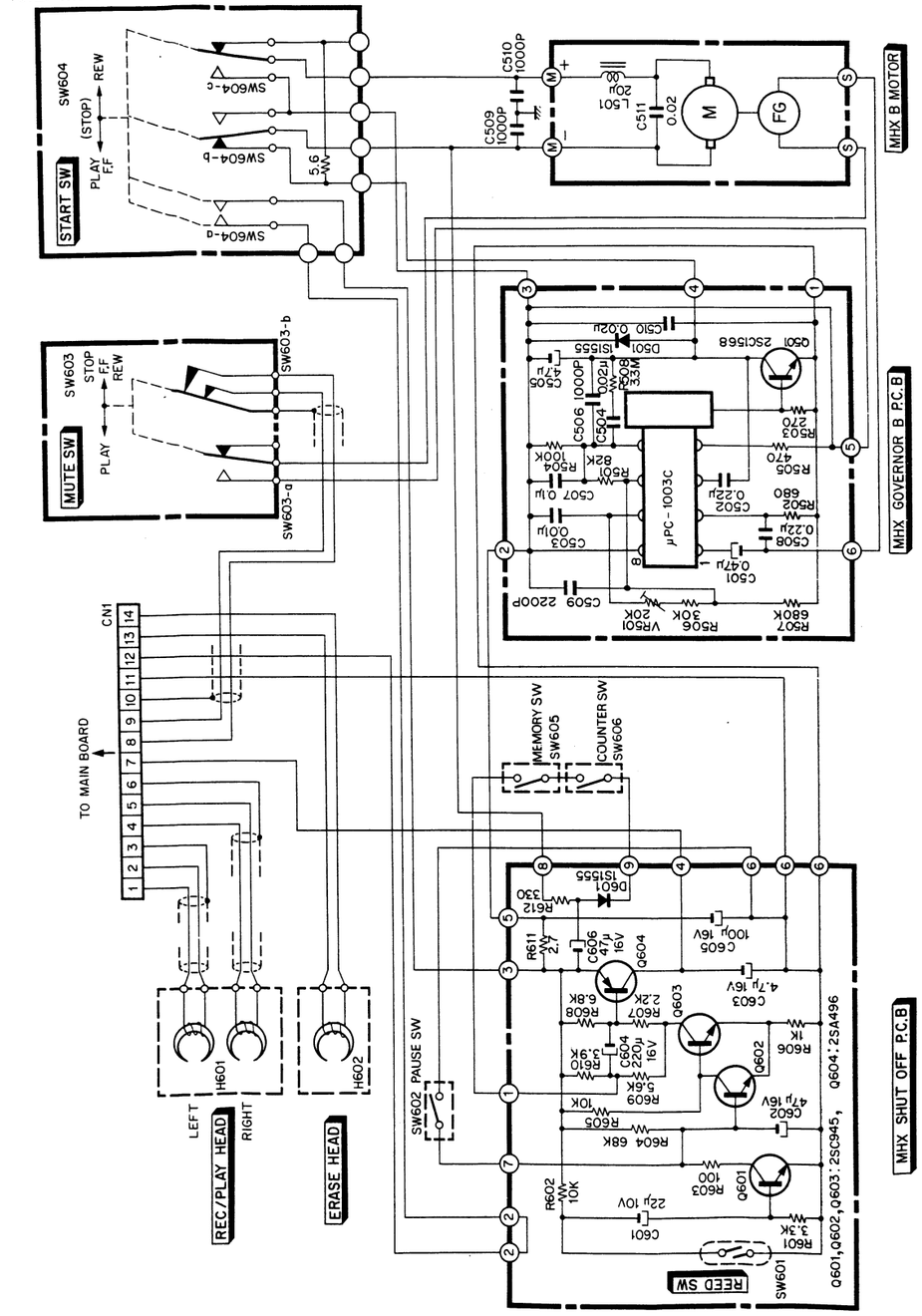

Fig. 10.2

11. SPECIFICATIONS

Power Supply	100, 117, 220, 240V 50/60Hz
Power-Consumption	40W Max.
Tape-Speed	1-7/8 ips.
Wow & Flutter	0.13% WTD peak
Frequency Response	40Hz - 17KHz±3dB (SX or EXII tape) 40Hz - 15KHz±3dB (Low noise tape)
Signal to Noise Ratio	Better than 63dB (Dolby NR In, Wrms CCITT 400Hz 3% Distortion)
Total Harmonic Distortion	Less than 1.5% (at 400Hz, 0dB SX or EXII tape)
Erasure	Better than 60dB (at 1KHz 0dB Saturation Level)
Channel Separation	Better than 35dB (at 1KHz 0dB)
Cross Talk	Better than 60dB (at 1KHz 0dB)
Bias Frequency	105KHz
Input:	
Mic	0.2mV 10 Kohm
Blend Mic	0.2mV 10 Kohm
Line	70mV 150 kohm
DIN	13mV 25 Kohm
Output:	
Line	1.0V (Max.) Variable
Headphones	1mW 8 ohm (0dB)
Dimensions (Approx)	15"(W) x 4-1/2"(H) x 10"(D)
Weight (Approx)	15-1/2 lbs.

- Specifications and appearance design are subject to change for further improvement without notice.
- Dolby system under license from Dolby Laboratories Inc.
- The word "DOLBY" and the Double-D-Symbol are trademarks of Dolby Laboratories Inc.

12. HISTORY ON 500

12.1. Major Modifications

(1) Tape and Time Constants

S/N 365741

Tape: EX, NORMAL, Cr02 Time Constants: EX, NORMAL: 1590 μs + 120 μs Cr02: 3180 μs + 70 μs	Tape: EX, NORMAL, SX Time Constants: EX, NORMAL: 3180 μs + 120 μs SX: 3180 μs + 70 μs

(2) Motor and Motor Governor

S/N 358441	S/N 361541	S/N 370141	
JA Motor and Governor	NE Motor and Governor	MHX Motor and Governor	MHXB Motor and Governor

12.2. Modification (details)

Following shows the revised history of each P.C.B., mounting diagrams and schematic Diagrams:

12.2.1. Main P.C.B. Ass'y

(1) S/N –365740 (for Cr02 tape)
Part No.: BA-3682
See Fig. 12.1.

(2) S/N 365741 – (for SX tape)
Latest one (including following minor modifications):
(a) Mic. Amp. Input Impedance
Resistors R101 and 201 have been changed from 3.3K to 10K.
(b) Bias Oscillation Level
R304 has been changed from 22Ω 5W to 12Ω 5W and R322 4.7K has been added.

12.2.2. Dolby Board Ass'y

Stays the same.

12.2.3. Rec. Cal. Board Ass'y

(1) S/N –365740 (for Cr02 tape)
Part No.: BA-3660
See Fig. 12.2.

(2) S/N 365741– (for SX tape)
Latest one

12.2.4. Volume Sub Board Ass'y

Part No.: BA-3661
BLEND Mic. input impedance has been modified by changing R901 from 3.3K to 10K.
The latest one is interchangeable with previous one.

12.2.5. 400Hz OSC. Board Ass'y

Part No.: BA-3659
See Fig. 12.3.
R320 has been changed from 1.8M to 1.5M and R321 (560K) has been added.
The latest one is interchangeable with previous one.

12.2.6. Motor Governor

(1) S/N –358440 (for JA Motor)
Part No.: CA-3164 (Motor Governor Ass'y JA)
See Fig. 12.4.

(2) S/N 358441-361540 (for NE Motor)
Part No.: CA-3235 (NE Governor P.C.B. Ass'y)
See Fig. 12.5.

(3) S/N 361541-370140 (for MHX Motor)
Part No.: CA03250A (MHX Governor)
See Fig. 12.6.

(4) S/N 370141– (for MHXB Motor)
Latest one (MHX Governor B)
Interchangeable with MHX Governor.

12.2.7. Auto Shut-off Board

(1) S/N –361540 (for JA and NE Motor)
Part No.: CA-3208
See Fig. 12.7.

(2) S/N 361541-370140 (for MHX Motor)
Part No.: CA03251A
Same as the latest one except R641 (R641 is 4.7K instead of 3.9K).

(3) S/N 370141– (for MHXB Motor)
Latest one

12.2.8. DC Power Supply Board

(1) S/N –358440 (for JA Motor Ass'y)
Part No.: BA-3634
See Fig. 12.8.

(2) S/N 358441-361540 (for NE Motor Ass'y)
Part No.: BA-3634
Connection of the RED signal wire (CN1-12) on the board has been changed from 15V DC to 13V DC.

(3) S/N 361541-370140 (for MHX Motor)
Part No.: BA03634B
Connection of the RED signal wire (CN1-12) on the board has been changed from 13V DC to 15V DC.
R404 22Ω 5W has been changed to 33Ω 3W.

(4) S/N 370141– (for MHXB Motor)
Latest one
Connection of the RED signal wire (CN1-12) on the board has been changed from 15V DC to 13V DC.
R404 (33Ω 3W) and C405 (1000 μF 25V) have been removed.

12.2.9. Schematic Diagram (Mechanism)

(1) S/N –358440 (for JA Motor)
See Fig. 12.9.

(2) S/N 358441-361540 (for NE Motor)
See Fig. 12.10.

(3) S/N 361541-370140 (for MHX Motor)
See Fig. 12.11.

(4) S/N 370141– (for MHXB Motor)
Latest one

12.2.10. Schematic Diagram (Amplifier)

(1) S/N –365740 (for Cr02 Tape)
See Fig. 12.12.

(2) S/N 365741– (for SX Tape)
Latest one

Note: For the minor modifications of each circuit, refer to the above items.

Main P.C.B. Ass'y

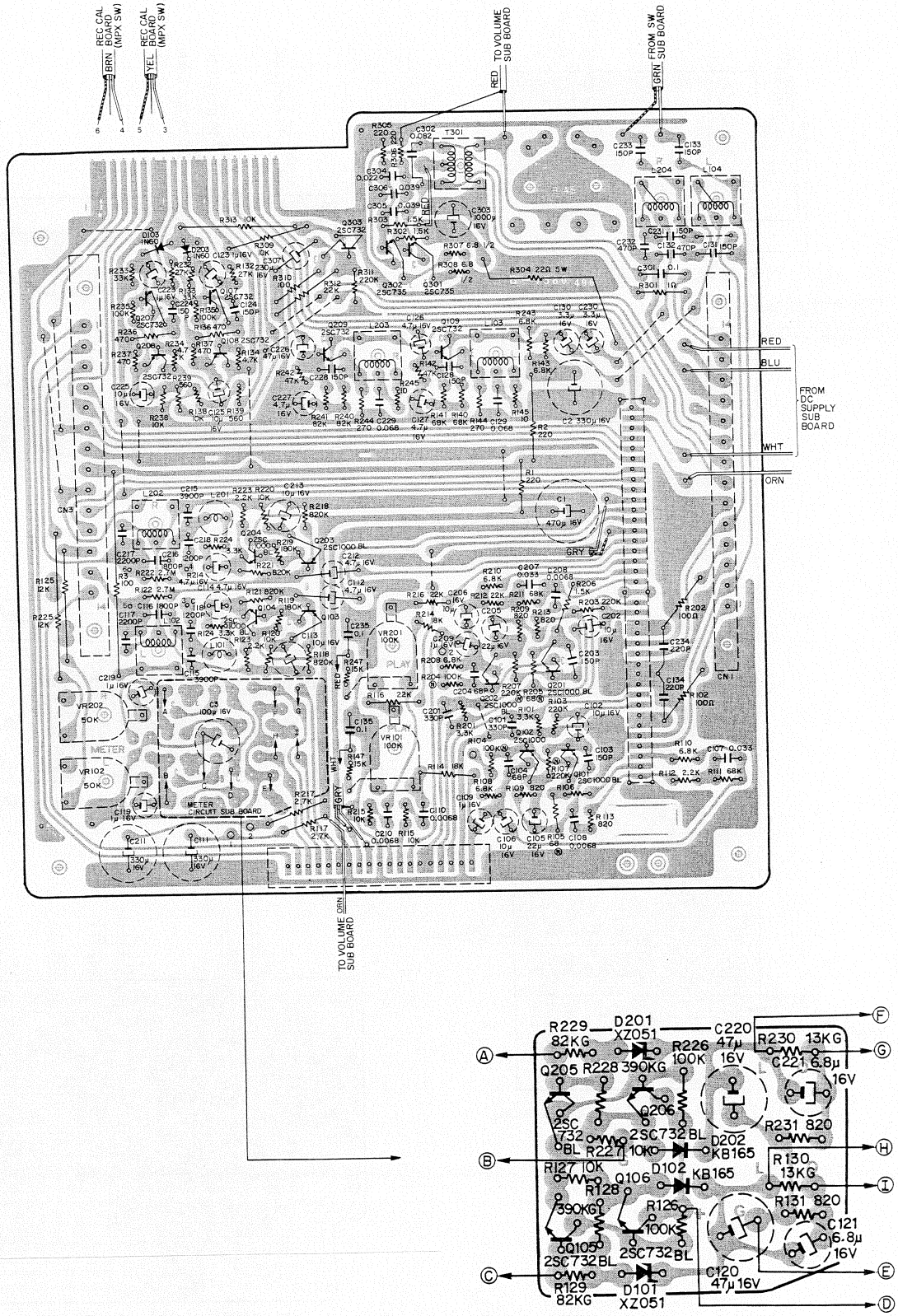

Fig. 12.1 S/N –365740 (for CrO2 tape)

Rec. Cal Board Ass'y

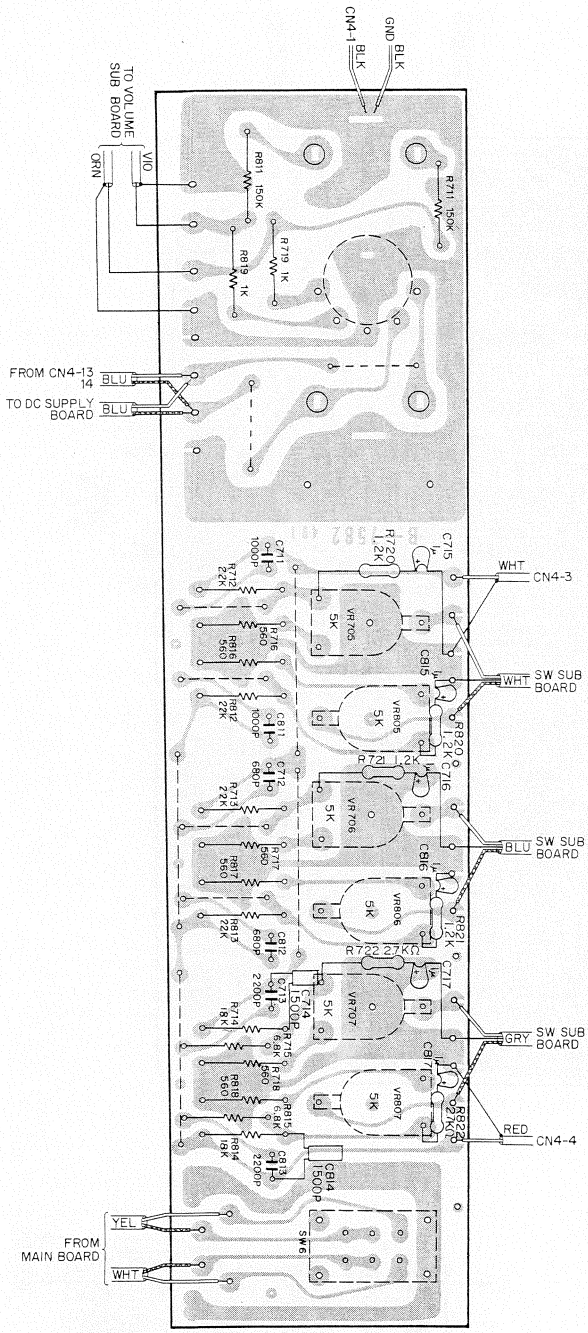

Fig. 12.2 S/N –365740 (for CrO2 tape)

400Hz OSC. Board Ass'y

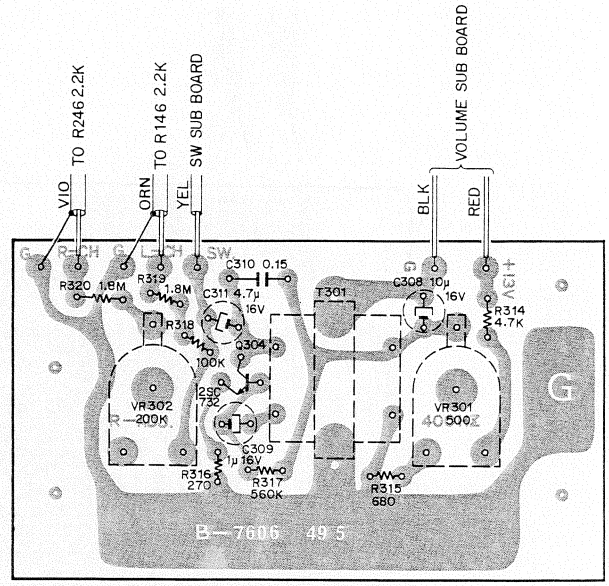

Fig. 12.3

Motor Governor

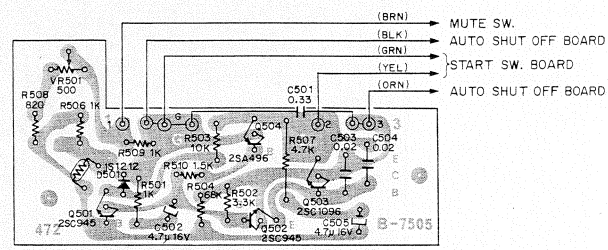

Fig. 12.4 S/N –358440 (for JA Motor)

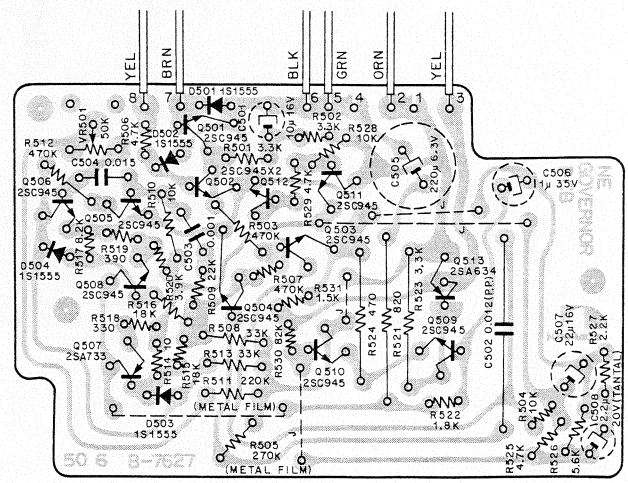

Fig. 12.5 S/N 348441–361540 (for NE Motor)

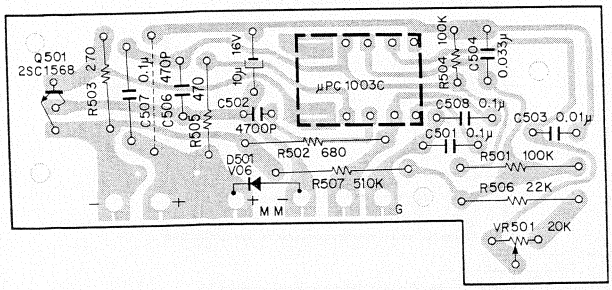

Fig. 12.6 S/N 361541–370140 (for MHX Motor)

Auto Shut-off Board

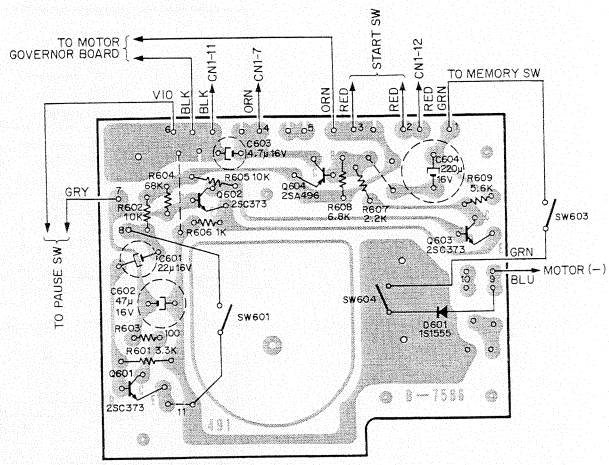

Fig. 12.7 S/N –361540 (for JA and NE Motor)

DC Power Supply Board

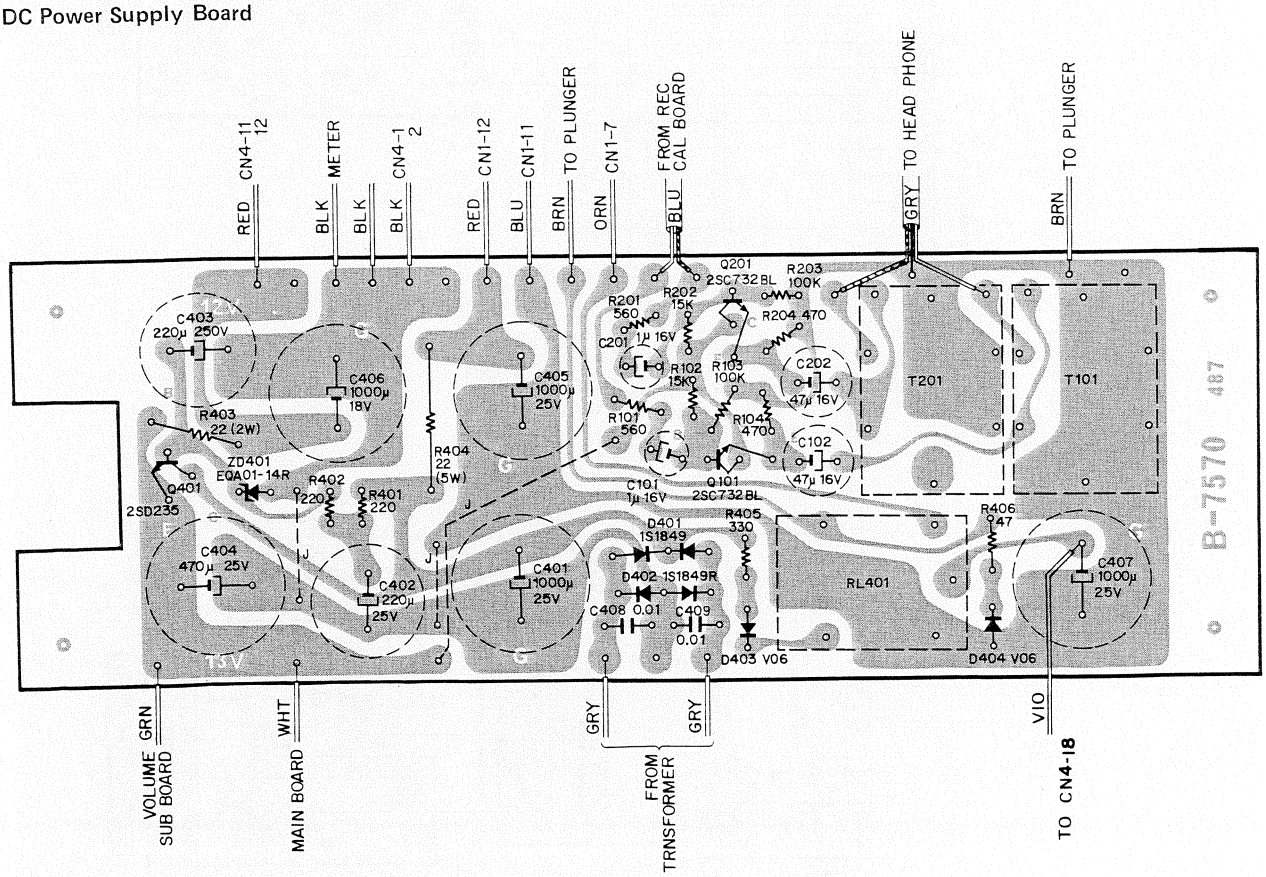

Fig. 12.8 S/N –358440 (for JA Motor)

Schematic Diagram (Mechanism)

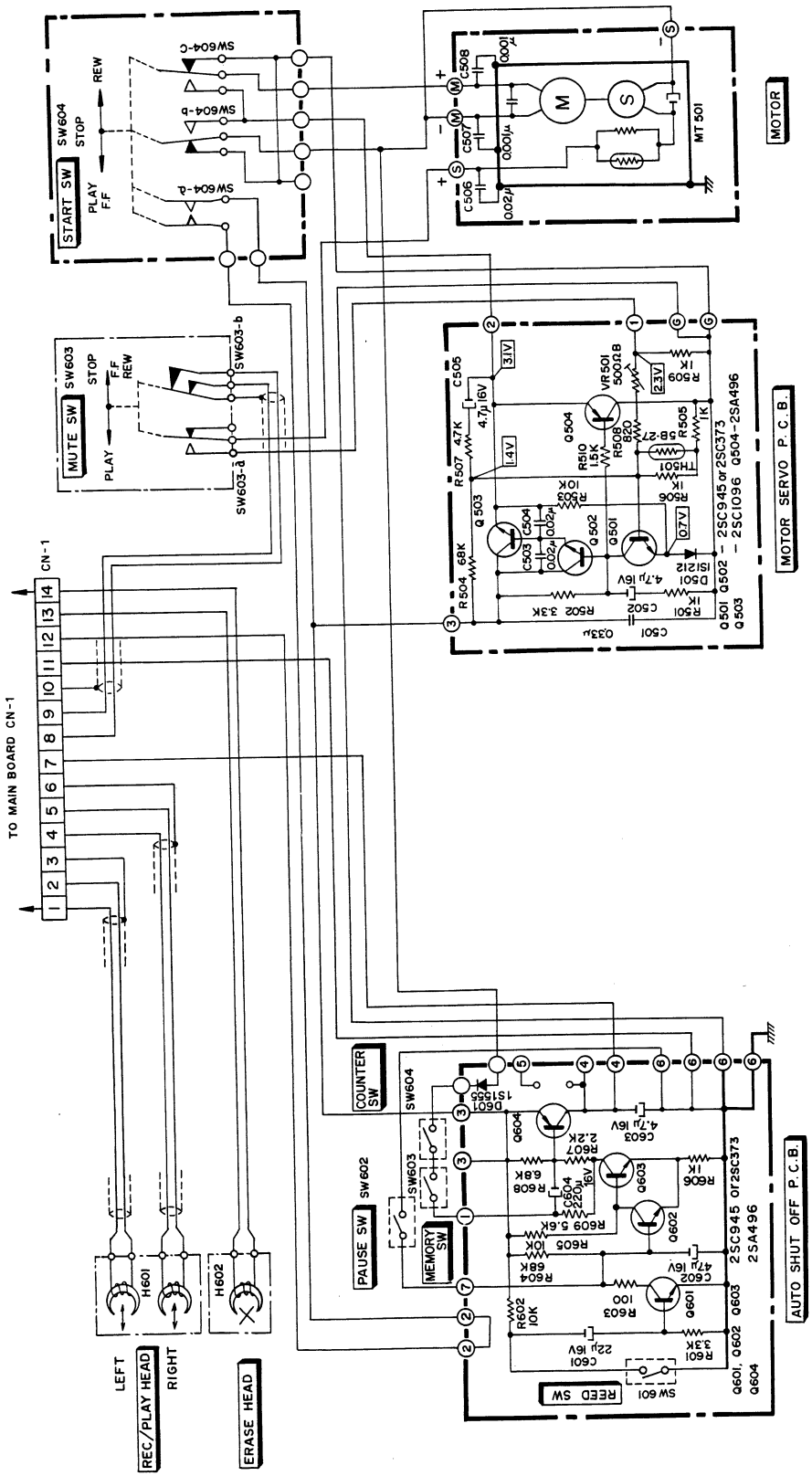

Fig. 12.9 S/N –358440 (for JA Motor)

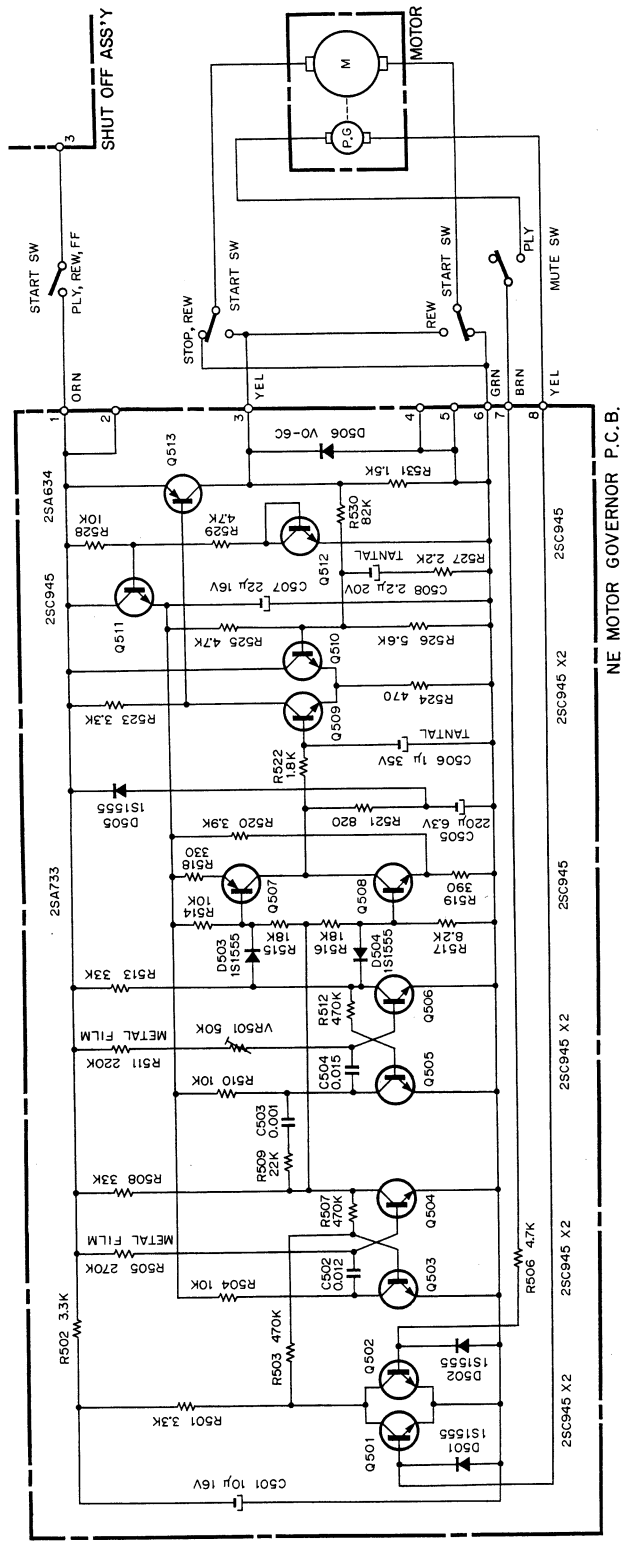

Fig. 12.10 S/N 358441—361540 (for NE Motor)

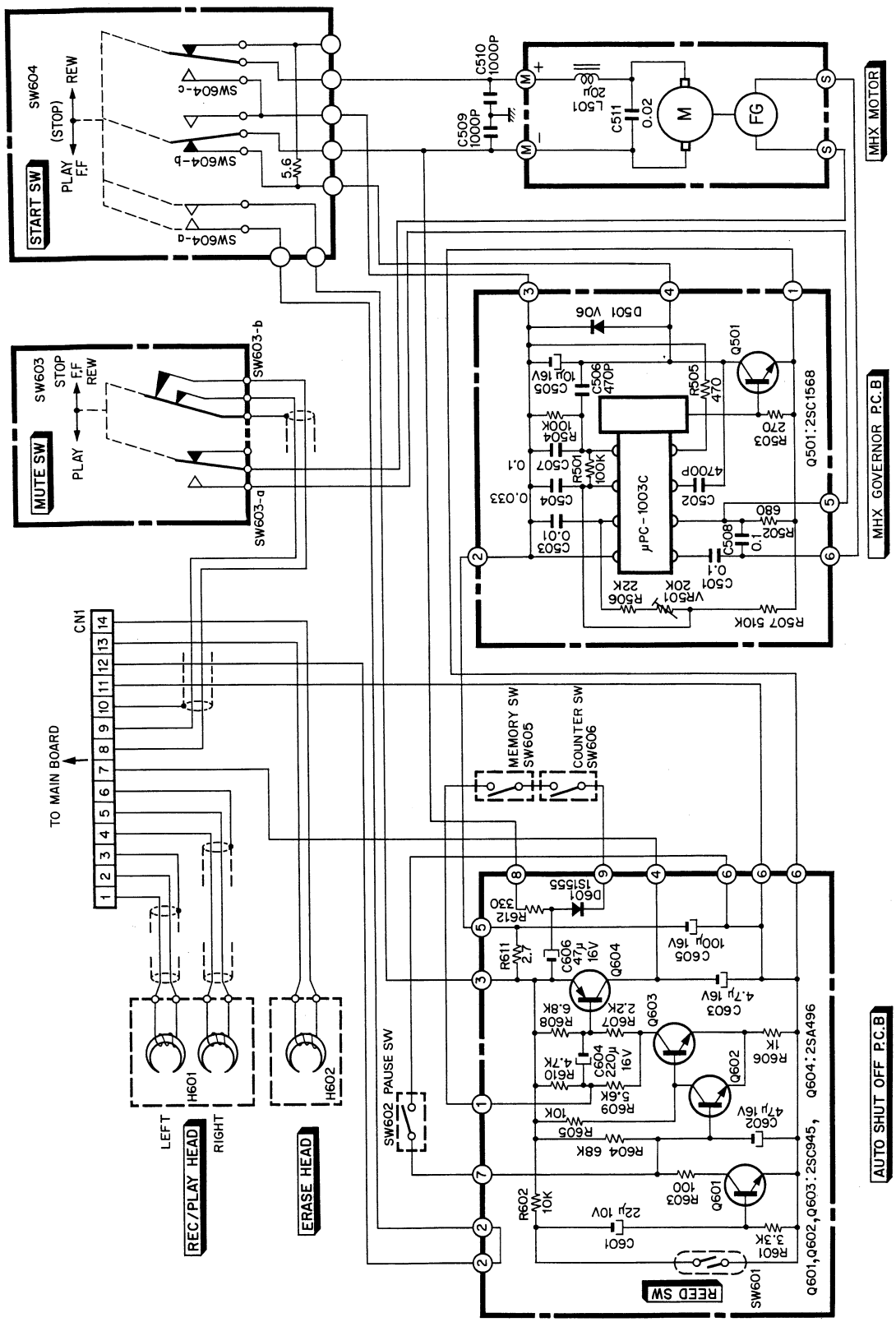

Fig. 12.11 S/N 361541–370140 (for MHX Motor)

Schematic Diagram (Amplifier)

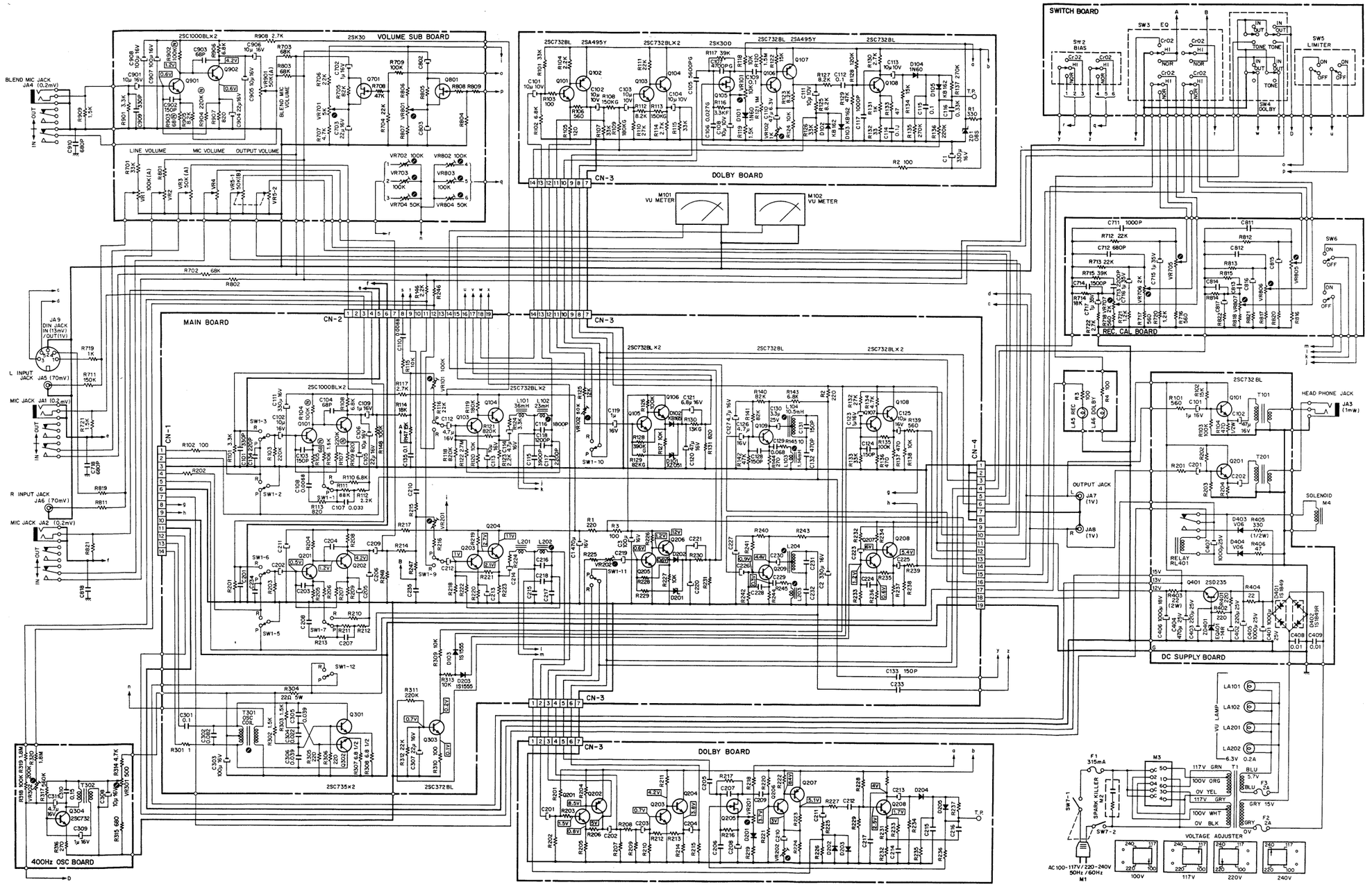

Fig. 12.12 S/N –365740 (for CrO2 tape)